

10/507307

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DICTIONARY FILE UPDATES: 20 SEP 2007 HIGHEST RN 947666-94-6

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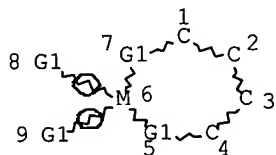
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L1 SCR 1984  
L2 STR

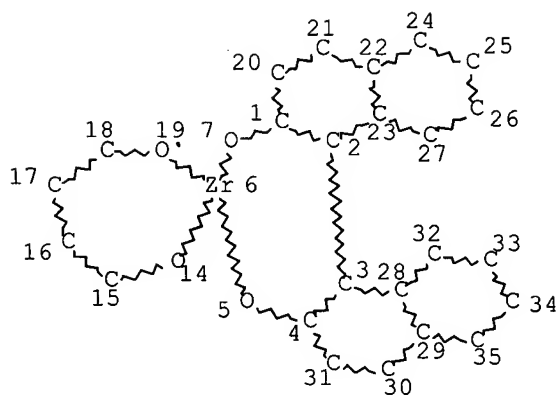


Str. I - Claim 17  
Screen 1984 = Group IVa Metals

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DEFAULT ECLEVEL IS LIMITED

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RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE  
L3 ( 324)SEA FILE=REGISTRY SSS FUL L1 AND L2  
L4 STR



## NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 29

## STEREO ATTRIBUTES: NONE

L5 9 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

100.0% PROCESSED 19 ITERATIONS

9 ANSWERS

SEARCH TIME: 00.00.01

FILE 'CAPLUS' ENTERED AT 12:12:38 ON 21 SEP 2007

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FILE COVERS 1907 - 21 Sep 2007 VOL 147 ISS 14

FILE LAST UPDATED: 20 Sep 2007 (20070920/ED)

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<http://www.cas.org/infopolicy.html>

L6 7 L5

L6 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1117968 CAPLUS Full-text

DOCUMENT NUMBER: 144:36181

TITLE: Chiral zirconium catalysts using multidentate BINOL derivatives for catalytic enantioselective Mannich-type reactions; ligand optimization and approaches to elucidation of the catalyst structure

AUTHOR(S): Ihori, Yoichi; Yamashita, Yasuhiro; Ishitani, Haruro; Kobayashi, Shu

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, University of Tokyo, Tokyo, Hongo, Bunkyo-ku, 113-0033, Japan

SOURCE: Journal of the American Chemical Society (2005), 127(44), 15528-15535  
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 144:36181

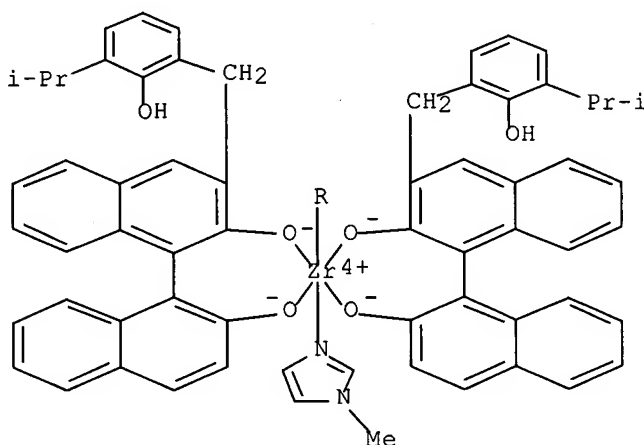
AB Catalytic enantioselective Mannich-type reactions of Si enolates with aldimines were studied using chiral Zr catalysts prepared from  $\text{Zr}(\text{OtBu})_4$ , N-methylimidazole, and newly designed multidentate BINOL derivs. These new multidentate BINOL ligands were designed from an assumed transition state structure of a chiral Zr catalyst derived from two mols. of (R)-6,6'-Br<sub>2</sub>-BINOL. Not only tetradentate BINOL 4 but also tridentate BINOL derivs. are effective, and high enantioselectivities were attained. In a structural study of the most effective Zr complex prepared from tridentate ligand, (R)-3-(2-hydroxy-3-isopropylbenzyl)-1,1'-binaphthalene-2,2'-diol (6e), several NMR expts. and DFT calcns. were carried out. Consequently, the structure of an active catalyst and plausible mechanism of asym. induction were elucidated.

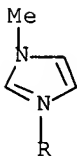
IT **870695-94-6P**  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(chiral BINOL zirconium-catalyzed enantioselective Mannich-type reactions of silicon enolates with aldimines)

RN 870695-94-6 CAPLUS

CN Zirconium, bis[(1R)-3-[[2-hydroxy-3-(1-methylethyl)phenyl]methyl][1,1'-binaphthalene]-2,2'-diolato(2-)-κO,κO']bis(1-methyl-1H-imidazole-κN3)-, (OC-6-12)- (9CI) (CA INDEX NAME)

PAGE 1-A



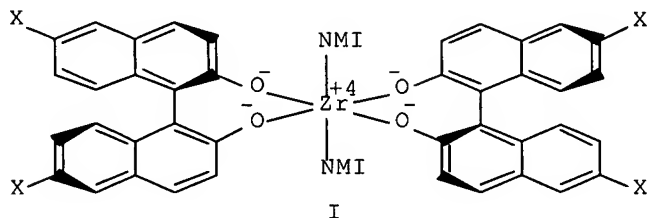


REFERENCE COUNT: 76 THERE ARE 76 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2003:723694 CAPLUS Full-text  
 DOCUMENT NUMBER: 139:245789  
 TITLE: Chiral zirconium catalysts and preparation of optically-active anti- $\alpha$ -methyl- $\beta$ -aminocarbonyl compounds using them  
 INVENTOR(S): Kobayashi, Osamu; Ishigai, Haruro  
 PATENT ASSIGNEE(S): Japan Science and Technology Corporation, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003261490	A	20030916	JP 2002-65277	20020311
PRIORITY APPLN. INFO.:			JP 2002-65277	20020311

OTHER SOURCE(S): MARPAT 139:245789  
 GI



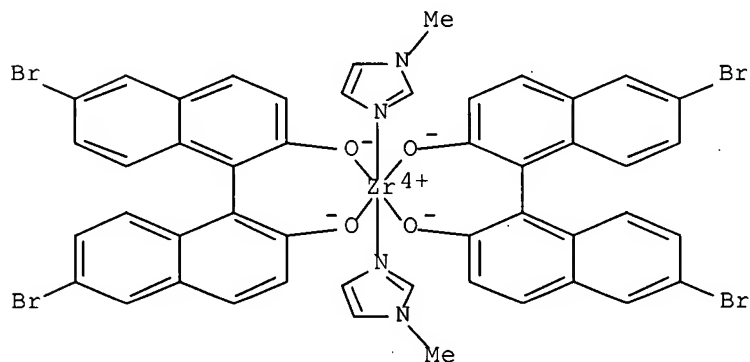
AB The catalysts having binaphthol derivs. as ligands are represented by I (X = electron-withdrawing group, NMI = N-methylimidazole). The optically-active compds., useful as intermediates for natural products and bioactive substances, are prepared by reacting imines with silyl enolates in the presence of I. A CH<sub>2</sub>Cl<sub>2</sub> solution of (R)-6,6'-dibromo-1,1'-bi-2-naphthol was mixed with a CH<sub>2</sub>Cl<sub>2</sub> solution of Zr(OCMe<sub>3</sub>)<sub>4</sub> and a CH<sub>2</sub>Cl<sub>2</sub> solution of N-methylimidazole under stirring at room temperature for 1 h. The catalyst solution was treated with a CH<sub>2</sub>Cl<sub>2</sub> solution of 2-HOC<sub>6</sub>H<sub>4</sub>N:CHPh and (E)-PhOC(OSiMe<sub>3</sub>):CHMe at -45° for 24 h to give 94% 2-HOC<sub>6</sub>H<sub>4</sub>NHCHPhCHMeCO<sub>2</sub>Ph with 47% e.e. (syn/anti ratio = 9:91).

IT 201339-16-4P 493025-07-3P

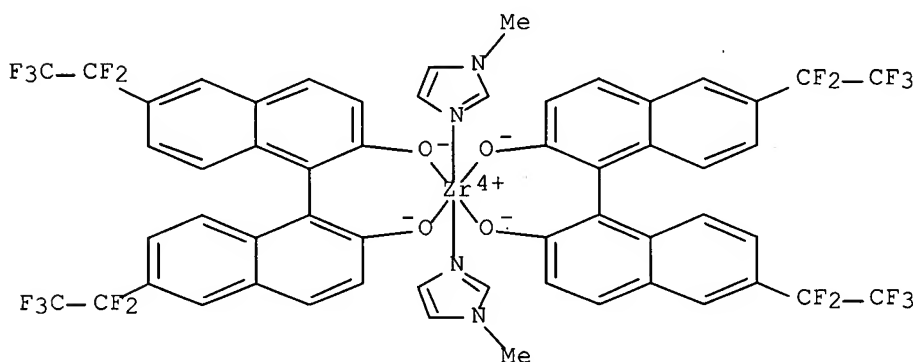
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(in situ formation of; preparation of optically-active anti- $\alpha$ -methyl- $\beta$ -aminocarbonyl compds. from imines and silyl enolates using chiral Zr catalysts)

RN 201339-16-4 CAPLUS

CN Zirconium, bis[(1R)-6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O']bis(1-methyl-1H-imidazole- $\kappa$ N3)-, (OC-6-11)-(9CI) (CA INDEX NAME)

RN 493025-07-3 CAPLUS

CN Zirconium, bis[(1R)-6,6'-bis(pentafluoroethyl)[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O']bis(1-methyl-1H-imidazole- $\kappa$ N3)-, (OC-6-11)-(9CI) (CA INDEX NAME)

L6 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:753467 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:137550

TITLE: Catalytic enantioselective addition of propionate units to imines: an efficient synthesis of anti- $\alpha$ -methyl- $\beta$ -amino acid derivatives

AUTHOR(S): Kobayashi, Shu; Kobayashi, Jun; Ishiani, Haruro; Ueno, Masaharu

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The

SOURCE: University of Tokyo, Tokyo, 113-0033, Japan  
Chemistry--A European Journal (2002), 8(18),  
4185-4190  
CODEN: CEUJED; ISSN: 0947-6539  
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 138:137550

AB Optically active anti- $\alpha$ -methyl- $\beta$ -amino acid derivs. have been prepared based on catalytic enantioselective addition of propionate units to simple and inert imines using a chiral zirconium complex. High reactivity and selectivity with wide substrate scope were attained by using a new chiral ligand, (R)-6,6'-bis(pentafluoroethyl)-1,1'-bi-2-naphthol ((R)-6,6'-C<sub>2</sub>F<sub>5</sub>BINOL). The reactions using geometrically isomeric ketene silyl acetals gave excellent anti-selectivity with high enantiomeric excess in both cases. Synthetic utility of this reaction has been demonstrated by the preparation of various anti- $\alpha$ -methyl- $\beta$ -amino acid and trans-3,4-disubstituted  $\beta$ -lactam derivs.

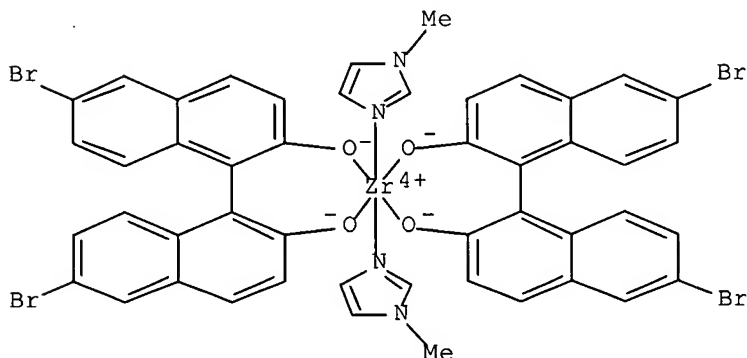
IT 201339-16-4 493025-07-3

RL: CAT (Catalyst use); USES (Uses)

(preparation of  $\alpha$ -methyl- $\beta$ -amino acid derivs. via catalytic enantioselective Mannich reaction of imines with propionates)

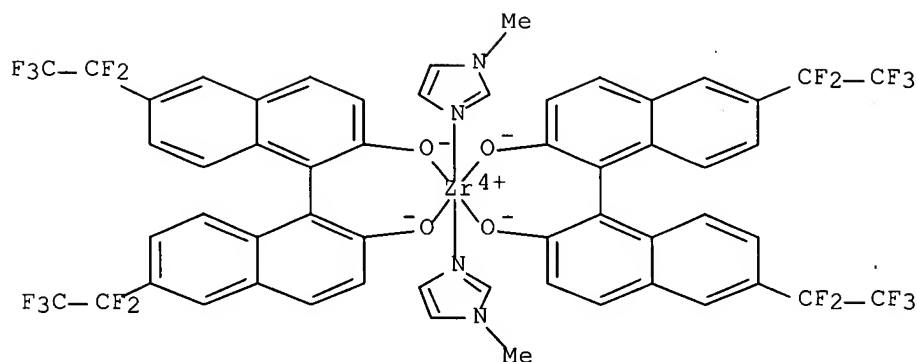
RN 201339-16-4 CAPLUS

CN Zirconium, bis[(1R)-6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O']bis(1-methyl-1H-imidazole- $\kappa$ N3)-, (OC-6-11)- (9CI) (CA INDEX NAME)



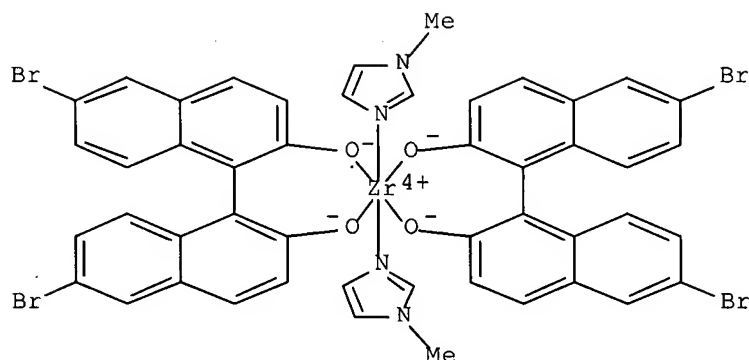
RN 493025-07-3 CAPLUS

CN Zirconium, bis[(1R)-6,6'-bis(pentafluoroethyl)[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O']bis(1-methyl-1H-imidazole- $\kappa$ N3)-, (OC-6-11)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:327210 CAPLUS Full-text  
 DOCUMENT NUMBER: 131:129871  
 TITLE: A Switch of Enantiofacial Selectivities Using Designed Similar Chiral Ligands in Zirconium-Catalyzed Asymmetric Aza Diels-Alder Reactions  
 AUTHOR(S): Kobayashi, Shu; Kusakabe, Ken-ichi; Komiyama, Susumu; Ishitani, Haruro  
 CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The University of Tokyo CREST Japan Science and Technology Corporation (JST), Tokyo, 113-0033, Japan  
 SOURCE: Journal of Organic Chemistry (1999), 64(12), 4220-4221  
 CODEN: JOCEAH; ISSN: 0022-3263  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 131:129871  
 GI For diagram(s), see printed CA Issue.  
 AB Aza-Diels-Alder reactions of N-(2-hydroxyphenyl) imines with 1-methoxy-3-(trimethylsiloxy)-1,3-butadiene gave 2-substituted 2,3-dihydro-1-(2-hydroxyphenyl)-4(1H)-pyridinones with an S configuration when Zr complex I (L = N-methylimidazole) was used as the catalyst, but when Zr complexes containing II (R = Br, R1 = H; R = H, R1 = NO2) were used as catalysts, products having the R configuration were obtained.  
 IT 201339-16-4  
 RL: CAT (Catalyst use); USES (Uses)  
 (effect of ligands on enantiofacial selectivity in zirconium-catalyzed asym. aza Diels-Alder reactions)  
 RN 201339-16-4 CAPLUS  
 CN Zirconium, bis[(1R)-6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)-kO,kO']bis(1-methyl-1H-imidazole-kN3)-, (OC-6-11)-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:97241 CAPLUS Full-text  
 DOCUMENT NUMBER: 130:209506  
 TITLE: Asymmetric zirconium catalysts, their preparation, and preparation of optically active compounds using them  
 INVENTOR(S): Kobayashi, Osamu  
 PATENT ASSIGNEE(S): Foundation for Scientific Technology Promotion, Japan; Japan Science and Technology Agency  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11033407	A	19990209	JP 1997-197589	19970723
JP 3547590	B2	20040728		
US 6107503	A	20000822	US 1998-38132	19980311
PRIORITY APPLN. INFO.:			JP 1997-197589	A 19970723

OTHER SOURCE(S): MARPAT 130:209506

AB Title catalysts, which containing Zr(IV) as a central atom and 2 optically active binaphthyl groups bonded to Zr via O, are prepared by reaction of Zr(OR)<sub>4</sub> (R = C1-4 alkyl) with optically active binaphthols. Optically active compds. are prepared by addition reaction of imines with nucleophiles in the presence of the catalysts. Zr(OBu-t)<sub>4</sub> (4 mmol) was treated with 8 mmol 6,6'-dibromo-1,1'-bi-2-naphthol and 8 mmol N-methylimidazole in CH<sub>2</sub>Cl<sub>2</sub> at room temperature for 1 h to give 4.56 g asym. catalyst. Reaction of imine (prepared from 1-naphthaldehyde and 2-aminophenol) with Me<sub>2</sub>C:C(OMe)OSiMe<sub>3</sub> in CH<sub>2</sub>Cl<sub>2</sub> in the presence of the catalyst at -45° for 10 h gave quant. β-amino ester with 92% ee, which was converted into NpCH(NH<sub>2</sub>)CMe<sub>2</sub>CO<sub>2</sub>Me (Np = 1-naphthyl) in 67% yield.

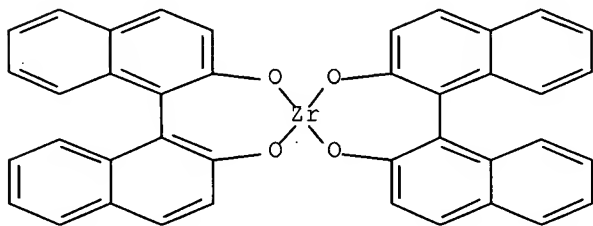
IT 21946-89-4P 220897-65-4P

RL: CAT (Catalyst use); IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

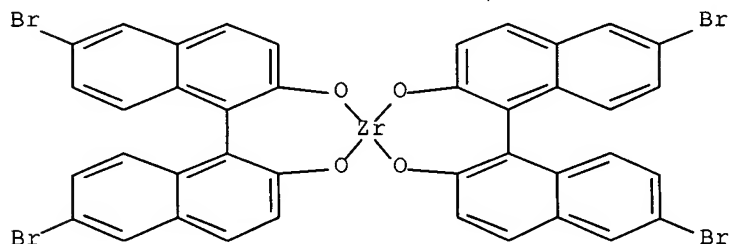
(asym. zirconium binaphthyl complex catalysts for addition reaction of silyl enolates to imines)



RN 21946-89-4 CAPLUS  
 CN Zirconium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O},\kappa\text{O}'$ ]- (9CI) (CA INDEX NAME)



RN 220897-65-4 CAPLUS  
 CN Zirconium, bis[6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O},\kappa\text{O}'$ ]-, (T-4)- (9CI) (CA INDEX NAME)



L6 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1998:52161 CAPLUS Full-text  
 DOCUMENT NUMBER: 128:101861  
 TITLE: Catalytic Asymmetric Synthesis of Both Syn- and  
 Anti- $\beta$ -Amino Alcohols  
 AUTHOR(S): Kobayashi, Shu; Ishitani, Haruro; Ueno, Masaharu  
 CORPORATE SOURCE: Department of Applied Chemistry Faculty of  
 Science, Science University of Tokyo (SUT), Tokyo,  
 162, Japan  
 SOURCE: Journal of the American Chemical Society (1998),  
 120(2), 431-432  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 128:101861

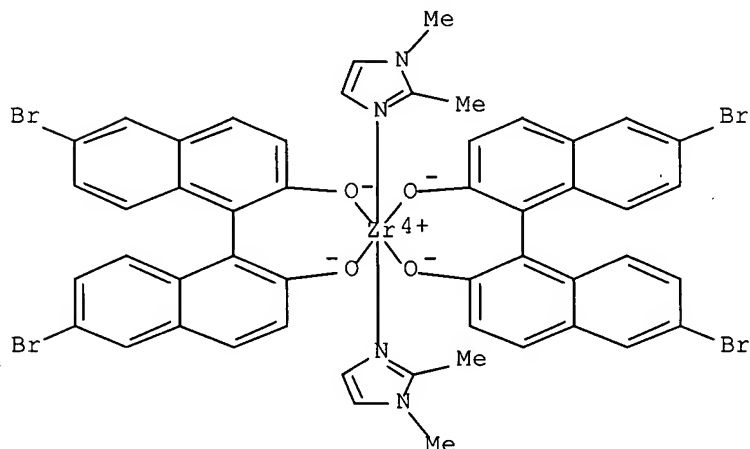
AB Both syn- and anti- $\beta$ -amino alc. units were prepared in high yields and high selectivities by catalytic asym. Mannich-type reactions of aldimines with  $\alpha$ -alkoxy silyl enolates. This method includes chiral zirconium-catalyzed diastereo- and enantioselective carbon-carbon bond-forming processes, and the syn- and anti-selectivities were controlled by simply choosing the protective groups of the  $\alpha$ -alkoxy parts and of the ester parts of the silyl enolates. (2R,3S)-3-Phenylisoserine hydrochloride (a precursor of the C-13 side-chain of taxol) was concisely synthesized using the present protocol.  
 IT 201339-15-3P 201339-16-4P 201425-26-5P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)

(catalytic asym. synthesis of both syn- and anti- $\beta$ -amino  
alcs.)

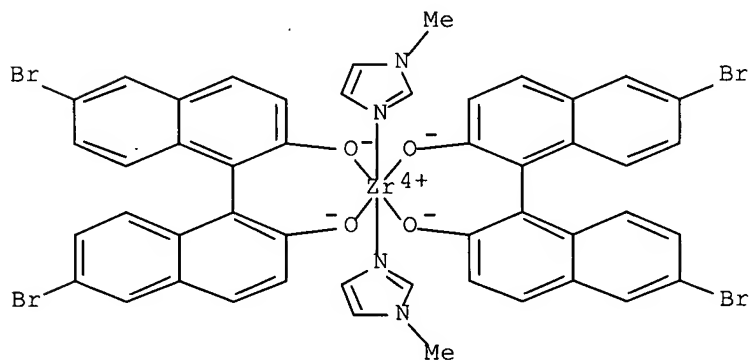
RN 201339-15-3 CAPLUS

CN Zirconium, bis[6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O}, \kappa\text{O}'$ ]bis(1,2-dimethyl-1H-imidazole- $\kappa\text{N}3$ )-,  
[OC-6-11-(R),(R)]- (9CI) (CA INDEX NAME)



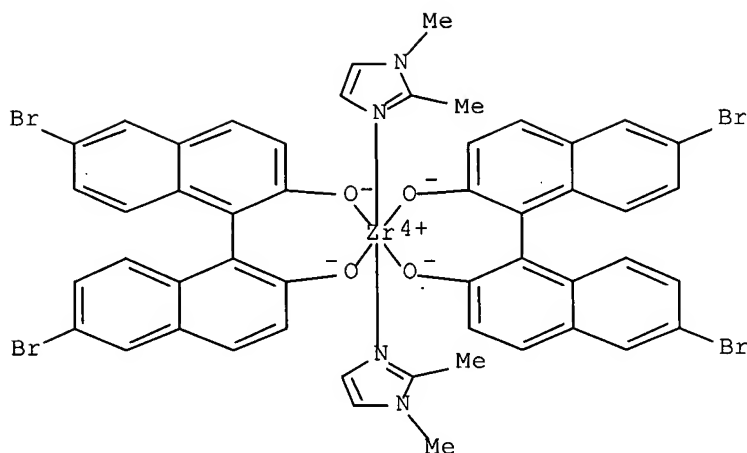
RN 201339-16-4 CAPLUS

CN Zirconium, bis[(1R)-6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O}, \kappa\text{O}'$ ]bis(1-methyl-1H-imidazole- $\kappa\text{N}3$ )-, (OC-6-11)-  
(9CI) (CA INDEX NAME)



RN 201425-26-5 CAPLUS

CN Zirconium, bis[6,6'-dibromo[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O}, \kappa\text{O}'$ ]bis(1,2-dimethyl-1H-imidazole- $\kappa\text{N}3$ )-,  
[OC-6-11-(S),(S)]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1968:502663 CAPLUS Full-text  
 DOCUMENT NUMBER: 69:102663  
 TITLE: Cyclic esters of zirconium and thorium  
 AUTHOR(S): Andra, K.  
 CORPORATE SOURCE: Martin-Luther-Univ., Halle/S., Fed. Rep. Ger.  
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1968), 361(5-6), 254-8  
 CODEN: ZAACAB; ISSN: 0044-2313  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German

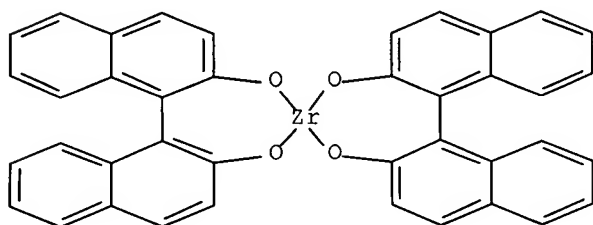
AB Colorless fine crystals,  $H_2[M(LO_2)_3]$  (I) complexes, were formed by reaction of anhydrous  $MCl_4$  in molten  $L(OH)_2$  followed by  $Et_2O$  extraction of the unreacted  $L(OH)_2$  ( $M = Th$  or  $Zr$ ;  $L(OH)_2 = 2,2'$ -dihydroxybiphenyl,  $2,2'$ -dihydroxybinaphthyl,  $1,8$ -dihydroxynaphthalene). In the presence of excess  $Et_2NH$ ,  $ZrCl_4$  reacted with  $L(OH)_2$  in  $MeOH$  to form the bis-amine adducts of I; the  $Th(IV)$  compound remained amine free.

IT 21946-89-4DP, 4,4'-Spirobi[dinaphtho[2,1-d:1',2'-f][1,3,2]dioxazircone], derivs. 22062-80-2P  
 22062-81-3P

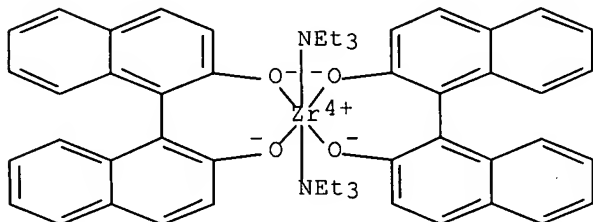
RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 21946-89-4 CAPLUS

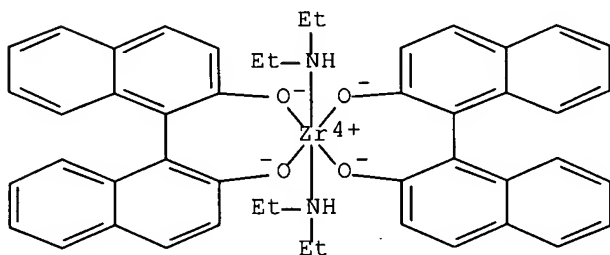
CN Zirconium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa O, \kappa O'$ ]- (9CI) (CA INDEX NAME)



RN 22062-80-2 CAPLUS  
 CN Zirconium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)]bis(triethylamine)- (8CI) (CA INDEX NAME)



RN 22062-81-3 CAPLUS  
 CN Zirconium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)]bis(diethylamine)- (8CI) (CA INDEX NAME)



FILE 'CAOLD' ENTERED AT 12:13:02 ON 21 SEP 2007  
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FILE COVERS 1907-1966  
 FILE LAST UPDATED: 01 May 1997 (19970501/UP)

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New CAS Information Use Policies, enter HELP USAGETERMS for details.

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L7 0 L5

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FILE 'BIOSIS' ENTERED AT 12:13:35 ON 21 SEP 2007

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FILE 'EMBASE' ENTERED AT 12:13:35 ON 21 SEP 2007

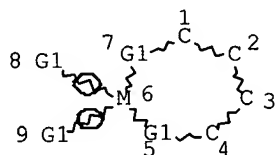
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L8 0 L5

(FILE 'REGISTRY' ENTERED AT 12:13:43 ON 21 SEP 2007)

L9 SCR 1984

L10 STR



VAR G1=O/S

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

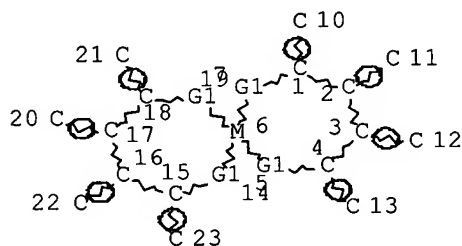
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L11 ( 324)SEA FILE=REGISTRY SSS FUL L9 AND L10

L12 STR



Broad query

VAR G1=O/S

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 21

STEREO ATTRIBUTES: NONE

L13 76 SEA FILE=REGISTRY SUB=L11 SSS FUL L12

100.0% PROCESSED 136 ITERATIONS

76 ANSWERS

SEARCH TIME: 00.00.01

FILE 'CAPLUS' ENTERED AT 12:14:59 ON 21 SEP 2007

L14 34 S L13

L15 27 S L14 NOT L6  
 L16 14 S L15 AND PATENT/DT  
 L17 7 S L16 AND (PY<2002 OR PRY<2002 OR AY<2002)  
 L18 13 S L15 NOT L16  
 L19 9 S L18 AND PY<2002  
 L20 16 S L17 OR L19

Ans. set restricted to patent/non-patent  
 citations dated prior to 2002

E1 THROUGH E29 ASSIGNED

L20 ANSWER 1 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:888644 CAPLUS Full-text  
 DOCUMENT NUMBER: 137:387895  
 TITLE: Preparation of transition metal-aluminum and  
 transition metal-gallium alloy powders from  
 organometallic compounds  
 INVENTOR(S): Boennemann, Helmut; Brijoux, Werner; Hofstadt,  
 Hans-Werner; Weidenthaler, Claudia  
 PATENT ASSIGNEE(S): Studiengesellschaft Kohle m.b.H., Germany  
 SOURCE: PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002092265	A1	20021121	WO 2002-EP5346	20020515
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W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NZ, OM, PH, PL, RO, SG, SI, SK, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10123766	A1	20030102	DE 2001-10123766	20010516
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AU 2002314070	A1	20021125	AU 2002-314070	20020515
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PRIORITY APPLN. INFO.:			DE 2001-10123766	A 20010516
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			WO 2002-EP5346	W 20020515

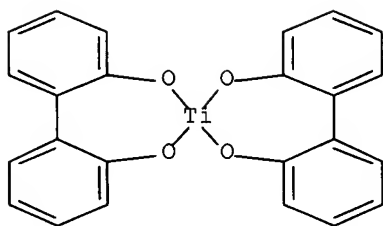
AB The invention concerns a fine transition metal-Al alloy and transition metal-Ga alloy powder which can be doped with other metals, especially Ni-Al powder, Ti-Al powder, Pt-Al powder, or Ni-Ga powder, having an average particle size of 150-400 nm and an average crystallite size of 1.2-4.5 nm, or  $\leq 40$  nm. The invention also relates to a low-temperature method for production of powders from organometallic compds. The alloys are suitable for high-temperature resistant coatings and as supports for magnetic pigments for magnetic recordings.

IT 20270-20-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in preparation of AlTi)

RN 20270-20-6 CAPLUS

CN Titanium, bis[[1,1'-biphenyl]-2,2'-diolato(2-)- $\kappa O, \kappa O'$ ]-,  
 (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:607657 CAPLUS Full-text  
 DOCUMENT NUMBER: 137:170372  
 TITLE: Curing accelerators and heat-curable polymer compositions having good storage stability  
 INVENTOR(S): Okubo, Akiko; Go, Yoshiyuki  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002226493	A	20020814	JP 2001-276351	20010912

PRIORITY APPLN. INFO.: JP 2000-361496 A 20001128  
 <--

OTHER SOURCE(S): MARPAT 137:170372

AB The accelerators comprise [R4PR3R2R1]+ [R9TiR8R7R6R5]- (R1-R4 = aromatic or heterocycle ring-containing monovalent organic group, monovalent aliphatic group; ≥1 group of R5-R9 = proton donor residue; the remainders of R5-R9 = H, halo, group forming Ti-C, Ti-O, or Ti-N). Thus, a composition containing biphenyl glycidyl ether epoxy resin (YX 4000H) 51, phenol aralkyl resin (Milex XL 225) 49, and Ph4P+ (PhO)5Ti- 2.76 parts showed torque 0.28 Nm after heating at 175° for 45 s.

IT 446022-89-5 446022-97-5 446062-32-4

RL: CAT (Catalyst use); USES (Uses)

(curing accelerators; curing accelerators and heat-curable polymer compns. having good storage stability)

RN 446022-89-5 CAPLUS

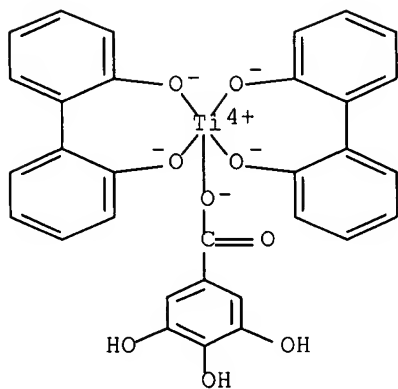
CN Phosphonium, tetraphenyl-, bis[[1,1'-biphenyl]-2,2'-diolato(2-)-κO,κO'] (3,4,5-trihydroxybenzoato-κO)titanate(1-)  
 (9CI) (CA INDEX NAME)

CM 1

CRN 446022-88-4

CMF C31 H21 O9 Ti

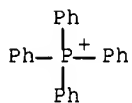
CCI CCS



CM 2

CRN 18198-39-5

CMF C24 H20 P



RN 446022-97-5 CAPLUS

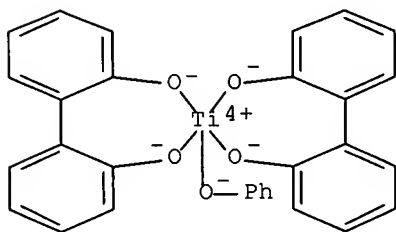
CN Phosphonium, triphenyl(phenylmethyl)-, bis[[1,1'-biphenyl]-2,2'-diolato(2-)-κO,κO']phenoxytitanate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 446022-96-4

CMF C30 H21 O5 Ti

CCI CCS

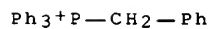


CM 2



CRN 15853-35-7

CMF C25 H22 P



RN 446062-32-4 CAPLUS

CN Phosphonium, tetrakis(4-methylphenyl)-, tetrakis[[1,1'-biphenyl]-2,2'-diolato(2-)- $\kappa\text{O}, \kappa\text{O}'$ ][ $\mu$ -[[[1,4-phenylenebis(methylene)]bis[phenolato- $\kappa\text{O}$ ]](2-)]dititanate(2-)(2:1) (9CI) (CA INDEX NAME)

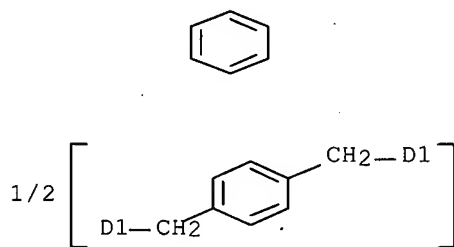
CM 1

CRN 446062-31-3

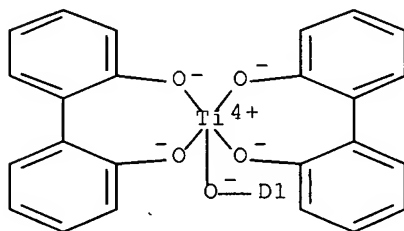
CMF C68 H48 O10 Ti2

CCI CCS, IDS

PAGE 1-A



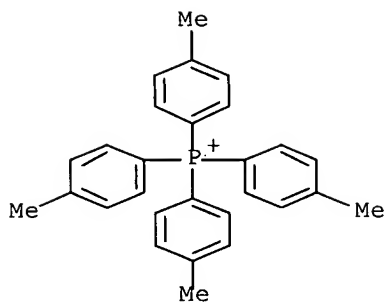
PAGE 2-A



CM 2

CRN 48220-52-6

CMF C28 H28 P

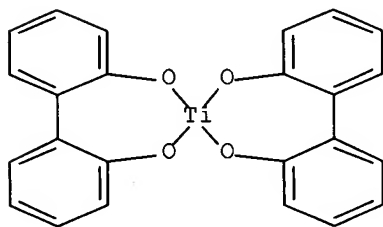


IT 20270-20-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of curing accelerators; curing accelerators and heat-curable polymer compns. having good storage stability)

RN 20270-20-6 CAPLUS

CN Titanium, bis[[1,1'-biphenyl]-2,2'-diolato(2-)-κO,κO']-,  
(T-4)- (9CI) (CA INDEX NAME)

L20 ANSWER 3 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:457132 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:257025

TITLE: Sc(BINOL)2Li: a new heterobimetallic catalyst for the asymmetric Strecker reaction

AUTHOR(S): Chavarot, M.; Byrne, J. J.; Chavant, P. Y.; Vallee, Y.

CORPORATE SOURCE: L.E.D.S.S., UMR CNRS-UJF, Universite Joseph Fourier, Grenoble, 38041, Fr.

SOURCE: Tetrahedron: Asymmetry (2001), 12(8), 1147-1150

CODEN: TASYE3; ISSN: 0957-4166

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 135:257025

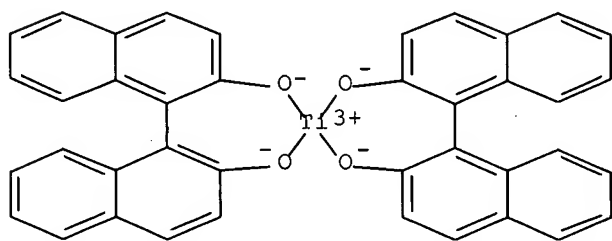
AB The new chiral heterobimetallic complex Sc(BINOL)2Li was prepared and used as a catalyst in the enantioselective addition of a cyanide source (HCN or TMS-CN) to several imines R1R2C:NCH2Ph (R1 = Ph, R2 = Me, H; R1 = 2-naphthyl, R2 = H). High conversion rates and enantiomeric excesses (e.e.s) as high as 95% were obtained for adduct R1R2C(NHCH2Ph)CN.

IT 362043-44-5P

RL: SPN (Synthetic preparation); PREP (Preparation)

(asym. Strecker cyanation of benzylimines using Sc(BINOL)Li catalyst)

RN 362043-44-5 CAPLUS  
 CN Titanate(1-), bis[(1R)-[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 κO,κO']-, lithium, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L20 ANSWER 4 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:881115 CAPLUS Full-text  
 DOCUMENT NUMBER: 134:41772  
 TITLE: Novel method for preparing optically active  
 alpha-aminonitriles by hydrocyanation of imines  
 using chiral metal complex catalysts  
 INVENTOR(S): Byrne, Janice; Chavarot, Murielle; Chavant,  
 Pierre-Yves; Vallee, Yannick; Henryon, Vivien  
 PATENT ASSIGNEE(S): Aventis CropScience SA, Fr.  
 SOURCE: PCT Int. Appl., 39 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000075104	A1	20001214	WO 2000-FR1597	20000609
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
FR 2794743	A1	20001215	FR 1999-7512	19990609
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EP 1102744	A1	20010530	EP 2000-940478	20000609
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
TR 200100435	T1	20010821	TR 2001-435	20000609

BR 2000006829	A	20011030	BR 2000-6829	20000609
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HU 200103428	A2	20020128	HU 2001-3428	20000609
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JP 2003501411	T	20030114	JP 2001-501585	20000609
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IN 2001DN00205	A	20050311	IN 2001-DN205	20010308
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PRIORITY APPLN. INFO.:			FR 1999-7512	A 19990609
			<--	
			WO 2000-FR1597	W 20000609
			<--	

OTHER SOURCE(S): CASREACT 134:41772; MARPAT 134:41772

AB The invention concerns a novel method for preparing optically active  $\alpha$ -amino nitriles R-NH-CR<sub>1</sub>R<sub>2</sub>-CN (I) by enantioselective hydrocyanation of ketimines R-N=CR<sub>1</sub>R<sub>2</sub>, using a hydrocyanation agent in the presence of a chiral or chirality-inducing metal complex acting as a catalyst [wherein: R = alkyl, (un)substituted aryl or arylalkyl; R<sub>1</sub>, R<sub>2</sub> = alkyl, certain substituted alkyls, (un)substituted aryl or heteroaryl, arylalkyl, aryloxyalkyl, arylthioalkyl, arylsulfonylalkyl; or R<sub>1</sub>R<sub>2</sub> may form a carbocycle or heterocycle which is optionally substituted or benzo-fused]. The invention also concerns the use of I as synthesis intermediates for certain optically active organic compds., especially for fungicidal 2-imidazolin-5-ones and -5-thiones described in EP-A-0629616. For instance, the catalyst Ti(BINOL)(OiPr)<sub>2</sub>TMEDA was prepared in PhMe solution by reaction of Ti(OiPr)<sub>4</sub> with BINOL and then TMEDA (tetramethylethylenediamine) at room temperature. Cooling to -20°, addition of Me<sub>3</sub>SiCN, addition of PhCH<sub>2</sub>N=C(Me)Ph, and hydrolysis of the mixture, gave the title compound PhCH<sub>2</sub>NHC(CN)(Me)Ph with 80% conversion and 56% enantiomeric excess (absolute configuration not specified). The product was hydrated with 95% H<sub>2</sub>SO<sub>4</sub> to give 43% yield of the protected amino amide PhCH<sub>2</sub>NHC(CONH<sub>2</sub>)(Me)Ph, followed by hydrogenolysis over Pd(OH)<sub>2</sub>/C to give 95% yield of the amino amide H<sub>2</sub>NC(CONH<sub>2</sub>)(Me)Ph.

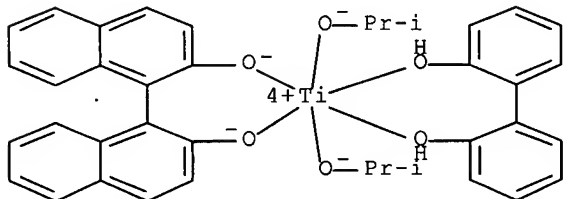
IT 312909-20-9P 312909-24-3P

RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)

(catalyst; preparation of optically active  $\alpha$ -amino nitriles by hydrocyanation of imines using chiral metal complex catalysts)

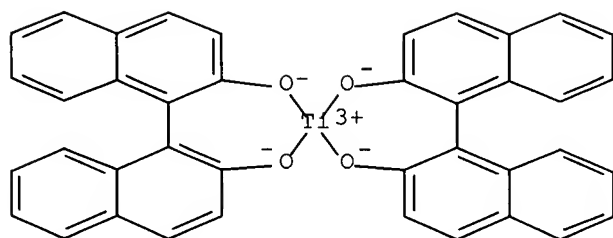
RN 312909-20-9 CAPLUS

CN Titanium, [[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O'][[1,1'-biphenyl]-2,2'-diol- $\kappa$ O, $\kappa$ O']bis(2-propanolato)- (9CI) (CA INDEX NAME)



RN 312909-24-3 CAPLUS

CN Titanate(1-), bis[[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa$ O, $\kappa$ O']-, lithium, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:846536 CAPLUS Full-text  
 DOCUMENT NUMBER: 134:148105  
 TITLE: Advanced conjugated polymer - helical polyacetylene  
 AUTHOR(S): Piao, Guangzhe; Kawamura, Naoya; Akagi, Kazuo; Shirakawa, Hideki; Kyotani, Mutsumasa  
 CORPORATE SOURCE: Institute of Materials Science, Center for Tsukuba Advanced Research Alliance, University of Tsukuba, Tsukuba, 305-8573, Japan  
 SOURCE: Polymers for Advanced Technologies (2000), 11(8-12), 826-829  
 CODEN: PADTE5; ISSN: 1042-7147  
 PUBLISHER: John Wiley & Sons Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

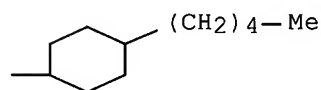
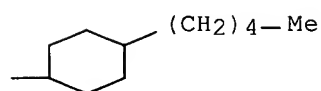
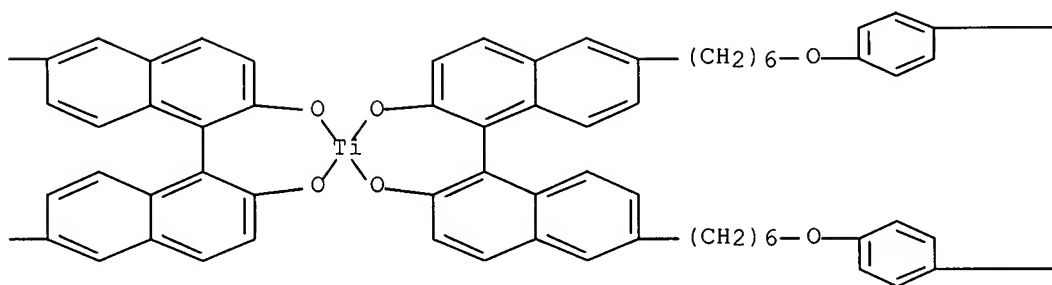
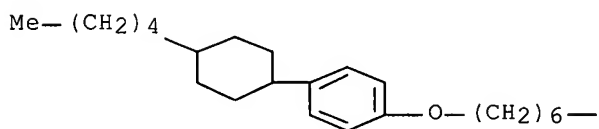
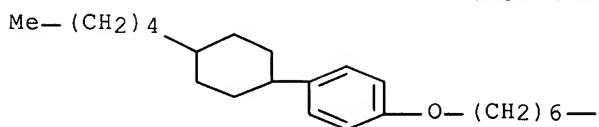
AB Helical polyacetylene [(CH)<sub>x</sub>] thin films were synthesized in chiral nematic (N\*) liquid crystal (LC) solvents. The N\*LC was prepared by adding a chiral titanium complex as a chiral dopant to a mixture of two nematic LCs. The titanium complexes induced the N\* phase when dissolved in nematic LCs and they were catalytically active for acetylene polymerization Pos. or neg. Cotton effect was observed in the region of  $\pi \rightarrow \pi^*$  transition of polyene chain in CD (CD) spectra for the (CH)<sub>x</sub> thin films synthesized under the N\* LC. Spiral fibrillar morphol. was observed through SEM measurement of the helical (CH)<sub>x</sub> film.

IT 322727-97-9 323200-73-3

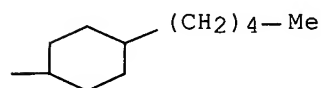
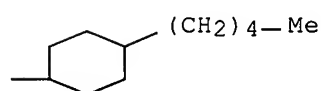
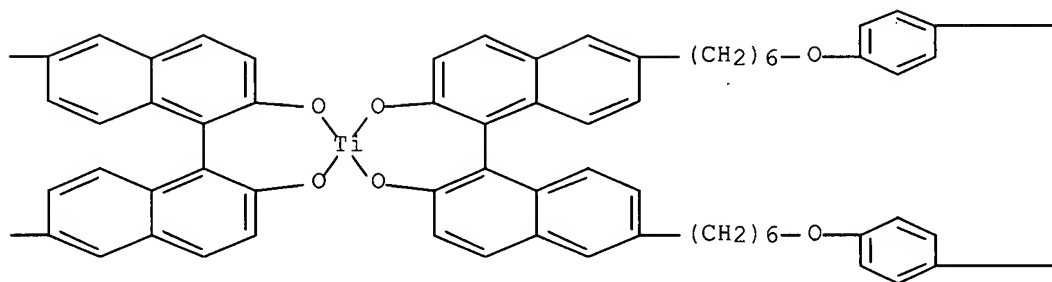
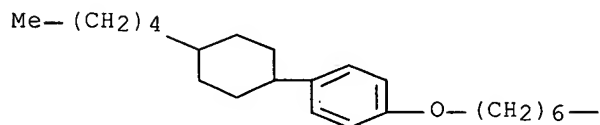
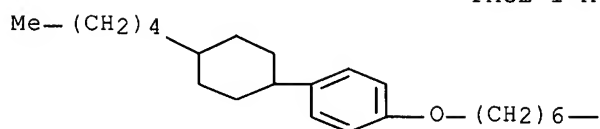
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (advanced conjugated polymer helical polyacetylene)

RN 322727-97-9 CAPLUS

CN Titanium, bis[(1R)-6,6'-bis[6-[4-(trans-4-pentylcyclohexyl)phenoxy]hexyl][1,1'-binaphthalene]-2,2'-diolato(2-)-kO,kO']-, (T-4)- (9CI) (CA INDEX NAME)



RN 323200-73-3 CAPLUS  
 CN Titanium, bis[(1S)-6,6'-bis[6-[4-(trans-4-pentylcyclohexyl)phenoxy]hexyl][1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa\text{O},\kappa\text{O}'$ ]-, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

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THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

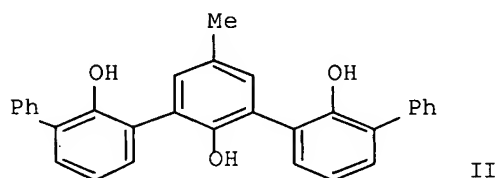
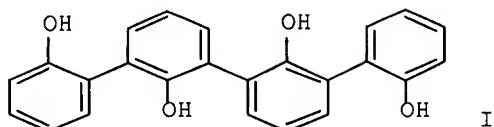
L20 ANSWER 6 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:481348 CAPLUS Full-text

DOCUMENT NUMBER: 133:231887

TITLE: Ortho-Linked Polyaryloxy Ligands and Their

Titanium Complexes  
 AUTHOR(S): Kayal, Ajay; Ducruet, Andrew F.; Lee, Sonny C.  
 CORPORATE SOURCE: Department of Chemistry, Princeton University,  
 Princeton, NJ, 08544, USA  
 SOURCE: Inorganic Chemistry (2000), 39(16),  
 3696-3704  
 CODEN: INOCAJ; ISSN: 0020-1669  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI



AB The ortho-linked polyphenols quaterphenol L(OH)<sub>4</sub> (I) and moderately hindered terphenol PhL(OH)<sub>3</sub> (II) are developed as new multidentate polyaryloxo ligands for transition-metal chemical. The polyphenols were synthesized using ortho-metalation and metal-catalyzed cross-coupling methodologies; the synthetic routes allow for facile electronic and steric modification of the basic ligand design. The Ti(IV) coordination chemical of these ligands reveals a diverse collection of bridged structures: dimeric [Ti(μ-PhLO<sub>3</sub>)(OiPr)]<sub>2</sub> (space group P2<sub>1</sub>/n, a 12.2699(5), b 11.7957(5), c 21.238(1) Å, β 94.551(1)°, Z = 2, T = 170(2) K), dimeric [Ti<sub>2</sub>(μ-PhLO<sub>3</sub>)<sub>2</sub>(μ-Cl)(Cl)(THF)] (space group P<sub>4</sub>h<sub>1</sub>, a 11.212(1), b 14.165(1), c 22.447(2) Å, α 90.440(4), β 93.345(4), γ 111.164(4)°, Z = 2, T = 170(2) K), and trimeric [Ti<sub>3</sub>(μ,μ'-LO<sub>4</sub>)(μ-OiPr)<sub>2</sub>(OiPr)<sub>6</sub>] (space group P2<sub>1</sub>/n, a 11.1022(5), b 18.7015(9), c 24.409(1) Å, β 95.369(2)°, Z = 4, T = 170(2) K). The reaction of TiCl<sub>3</sub>(THF)<sub>3</sub> with [PhLO<sub>3</sub>]<sub>3</sub><sup>-</sup> results in oxidation of Ti(III) to Ti(IV) and formation of the oxo dimer [Ti(PhLO<sub>3</sub>)(THF)]<sub>2</sub>(μ-O) (space group P<sub>4</sub>h<sub>1</sub>, a 10.8649(6), b 12.1882(7), c 14.3349(9) Å, α 65.602(3), β 84.390(3), γ 86.582(3)°, Z = 1, T = 200(2) K); the oxo group presumably originates from the THF solvent. The titanium centers in these environments are either 5- or 6-coordinate, with distorted square pyramidal/trigonal bipyramidal and distorted octahedral geometries, resp.; the polyphenoxide chelate ligands are capable of bridging multiple oxophilic titanium sites.

IT 291777-72-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and crystal structure)

RN 291777-72-5 CAPLUS

CN Titanium, μ-chlorochlorobis[μ-[5''-methyl[1,1':3',1'':3'',1''':3'''-  
 ''',1''''-quinquephenyl]-2',2'',2'''-triolato(3-)-

κO2',κO2'':κO2'',κO2''']] (tetrahydrofuran) di-,  
 stereoisomer, compd. with dichloromethane (1:4) (9CI) (CA INDEX NAME)



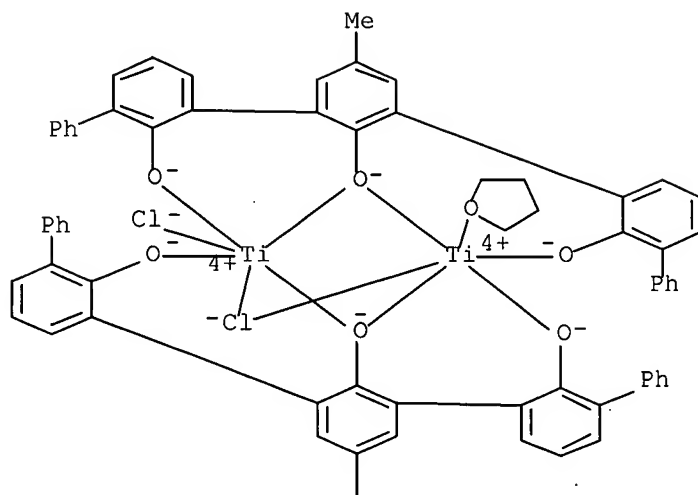
CM 1

CRN 291538-24-4

CMF C66 H50 Cl2 O7 Ti2

CCI CCS

PAGE 1-A



PAGE 2-A

Me

CM 2

CRN 75-09-2

CMF C H2 Cl2

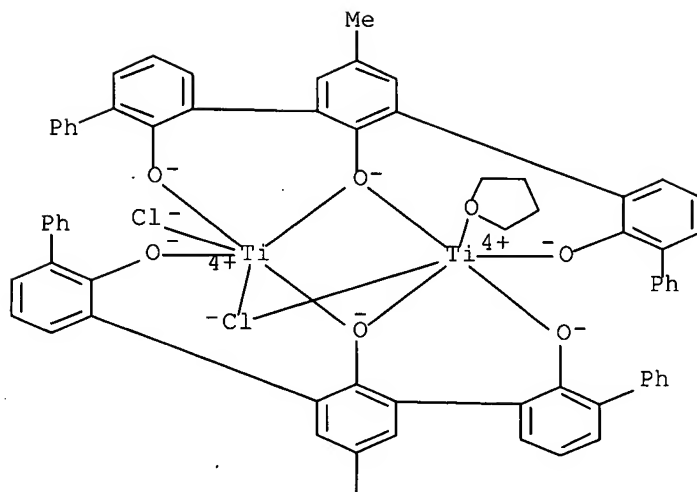
Cl-CH<sub>2</sub>-Cl

IT 291538-24-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and mol. structure)

RN 291538-24-4 CAPLUS

CN Titanium,  $\mu$ -chlorochlorobis[ $\mu$ -[5''-methyl[1,1':3',1'':3'',1''':3''',1''':3''''-quinquephenyl]-2',2'',2'''-triolato(3-)-  
 $\kappa$ O2', $\kappa$ O2'': $\kappa$ O2''', $\kappa$ O2'''']](tetrahydrofuran)di-,  
stereoisomer (9CI) (CA INDEX NAME)



Me

REFERENCE COUNT: 101 THERE ARE 101 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:166193 CAPLUS Full-text  
 DOCUMENT NUMBER: 132:214753  
 TITLE: Electrophotographic toners for formation of stable images under high and low moisture conditions  
 INVENTOR(S): Tanigawa, Hirohide; Kobori, Naokuni  
 PATENT ASSIGNEE(S): Canon Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000075556	A	20000314	JP 1998-243683	19980828
			<--	
JP 3774573	B2	20060517		
PRIORITY APPLN. INFO.:			JP 1998-243683	19980828
			<--	

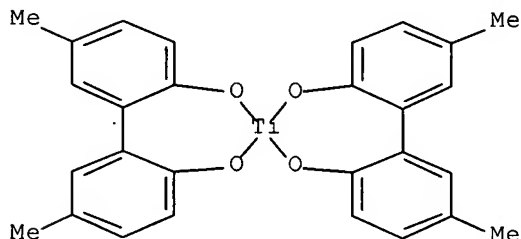
AB The toners contain binder resins, colorants, and Ti complex or complex salt charge controllers comprising aromatic polyols as ligands. The colorants may be magnetic Fe mixed oxides containing 0.05-10 weight% other elements. Optionally, the toners also contain waxes having different m.p. (m.p. difference 10-100°). High-quality images are obtained by high-speed image formation and even after repeated use.

IT 260547-34-0

RL: TEM (Technical or engineered material use); USES (Uses)  
 (charge controller; titanium complex charge controllers in  
 electrophotog. toners for clear image formation under high- and low  
 moisture conditions)

RN 260547-34-0 CAPLUS

CN Titanium, bis[5,5'-dimethyl[1,1'-biphenyl]-2,2'-diolato(2-)-  
 $\kappa O, \kappa O'$ ]-, (T-4)- (9CI) (CA INDEX NAME)



L20 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:763794 CAPLUS Full-text

DOCUMENT NUMBER: 132:28637

TITLE: Electrostatographic toner having negative  
 triboelectric chargeability

INVENTOR(S): Matsunaga, Satoshi; Nakahara, Toshiaki; Mizoh,  
 Yuichi; Tanikawa, Hirohide; Endo, Minekazu; Doujo,  
 Tadashi; Shi, Bayama Nene

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: Eur. Pat. Appl., 124 pp.

CODEN: EPXXDW

DOCUMENT TYPE: **Patent**

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 961175	A2	19991201	EP 1999-110131	19990525
			<--	
EP 961175	A3	20000419		
EP 961175	B1	20060125		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000227675	A	20000815	JP 1999-146156	19990526
			<--	
JP 2000227678	A	20000815	JP 1999-146196	19990526
			<--	
US 6232027	B1	20010515	US 1999-318776	19990526
			<--	
PRIORITY APPLN. INFO.:				
			JP 1998-143681	A 19980526
			<--	
			JP 1998-183458	A 19980630
			<--	
			JP 1998-216607	A 19980731
			<--	
			JP 1998-216608	A 19980731

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 JP 1998-346087 A 19981204  
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 JP 1998-346192 A 19981204  
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OTHER SOURCE(S): MARPAT 132:28637

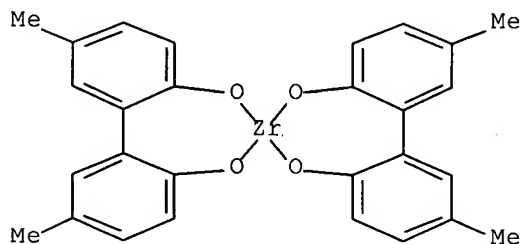
AB An electrostatog. toner having a neg. triboelec. chargeability comprises at least a binder resin, a colorant, and an organometallic compound, wherein the organometallic compound is an organozirconium compound comprising a coordination and/or a bonding of zirconium and an aromatic compound as ligand and/or an acid source selected from the group consisting of aromatic diols, aromatic hydroxycarboxylic acids, aromatic monocarboxylic acids, and aromatic polycarboxylic acids, the binder resin has an acid value of 2-50 mg KOH/g and is selected from the group consisting of polyesters and hybrid resins comprising a polyester unit and a vinyl polymer unit, and the toner contains a THF-soluble content providing a GPC curve exhibiting a main peak in a mol. weight range of 3000-20000 and including 3-25% of a component having a mol. weight of at least 5+105.

IT 226383-60-4

RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrostatog. toner having neg. triboelec. chargeability containing polyesters and)

RN 226383-60-4 CAPLUS

CN Zirconium, bis[5,5'-dimethyl[1,1'-biphenyl]-2,2'-diolato(2-)-  
 $\kappa O, \kappa O'$ ]-, (T-4)- (9CI) (CA INDEX NAME)



L20 ANSWER 9 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:375373 CAPLUS Full-text

DOCUMENT NUMBER: 131:25719

TITLE: Electrostatographic toner having negative triboelectric chargeability

INVENTOR(S): Tanikawa, Hirohide; Ohtake, Takeshi; Unno, Makoto; Kanbayashi, Makoto

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: Eur. Pat. Appl., 88 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 921442	A1	19990609	EP 1998-122936	19981203
EP 921442	B1	20050518		

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO

SG 73592	A1	20000620	SG 1998-5135	19981202
			<--	
US 6218065	B1	20010417	US 1998-204267	19981203
			<--	
ES 2241094	T3	20051016	ES 1998-122936	19981203
			<--	
JP 11237767	A	19990831	JP 1998-345806	19981204
			<--	
JP 3976917	B2	20070919		
CN 1229198	A	19990922	CN 1998-126963	19981204
			<--	
PRIORITY APPLN. INFO.:			JP 1997-335599	A 19971205
			<--	

OTHER SOURCE(S): MARPAT 131:25719

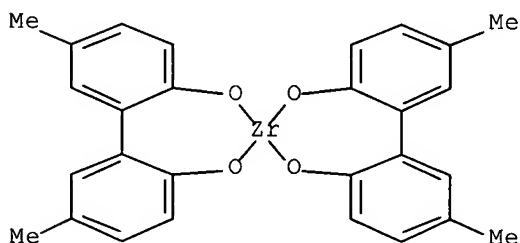
AB An electrostatog. toner having a neg. triboelec. chargeability and suitable for developing pos. or neg. charged images comprises at least a binder resin, a colorant, and an organic metal compound. The organic metal compound is an organic zirconium compound comprising a coordination and/or a bonding of zirconium and an aromatic compound as a ligand and/or an acid source selected from the group consisting of aromatic diols, aromatic hydroxycarboxylic acids, aromatic monocarboxylic acids, and aromatic polycarboxylic acids.

IT 226383-60-4

RL: TEM (Technical or engineered material use); USES (Uses)  
(electrostatog. toners having neg. triboelec. chargeability containing)

RN 226383-60-4 CAPLUS

CN Zirconium, bis[5,5'-dimethyl[1,1'-biphenyl]-2,2'-diolato(2-)-  
κO,κO']-, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L20 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:142382 CAPLUS Full-text

DOCUMENT NUMBER: 130:237474

TITLE: Preparation of optically-active titanium alkoxide  
complexes and their uses for preparation of  
α- and β-hydroxy esters and  
dihydropyrans

INVENTOR(S): Mikami, Koichi; Matsukawa, Satoru

PATENT ASSIGNEE(S): Takasago Perfumery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

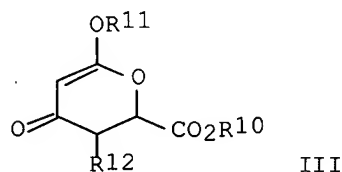
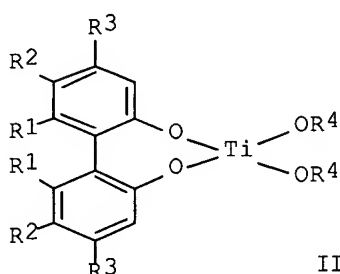
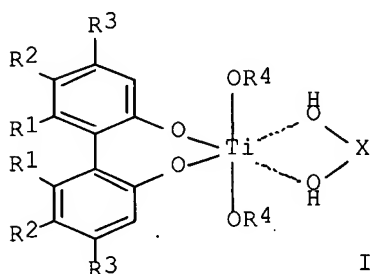
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE -----
JP 11060585	A	19990302	JP 1997-227014	19970811
			<--	
JP 3441344	B2	20030902		
US 6025503	A	20000215	US 1997-1918	19971231
			<--	
PRIORITY APPLN. INFO.:			JP 1997-227014	A 19970811
			<--	
OTHER SOURCE(S):	CASREACT 130:237474; MARPAT 130:237474			
GI				



AB The optically-active complexes, e.g. shown by I [R1 = Me, lower alkoxy, trihalomethyl; R2 = H, halo; R3 = H, Me; R4 = lower alkyl; X = (un)substituted biphenyl-2,2'-diyl, CH(CO2R7)CH(CO2R7) (R7 = lower alkyl), etc.; R1 and R2 may be bonded to each other to form a ring], and by (R), (S), or (RS)-Ti alkoxides II, etc., with (R), (S), or (RS)-diols (Markush given) as chiral activators (axially-asym. compds.) to activate one enantiomer. R7XCOCH2CHR8OH (R7 = lower alkyl; R8 = C1-10 alkyl; X = O, S) are prepared by aldol condensation of Me3SiOC(:CH2)XR7 with R8CHO using I, etc. as catalysts. R9C(:CH2)CH2CH(OH)CO2R10 (R9 = lower alkyl, Ph; R10 = lower alkyl) are prepared by treatment of R9CMe:CH2 with HCOCO2R10 using I, etc. Dihydropyrans III (R10, R11, R12 = lower alkyl) are prepared by hetero-Diels-Alder reaction of (Me3C)SiMe2OC(:CHR12)CH:CHOR11 with HCOCO2R10.

IT 188562-94-9P 188562-96-1P

RL: CAT (Catalyst use); IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

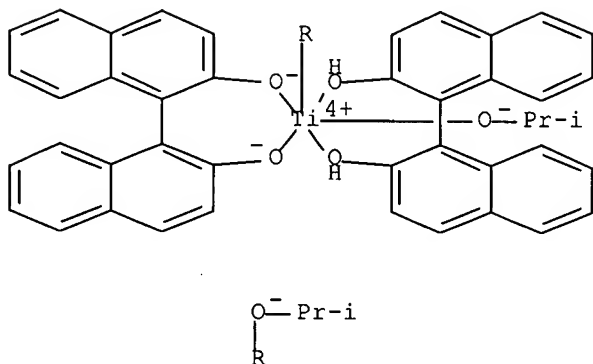
(preparation of optically-active titanium alkoxide complexes for preparation

of  $\alpha$ - and  $\beta$ -hydroxy esters and dihydropyrans)

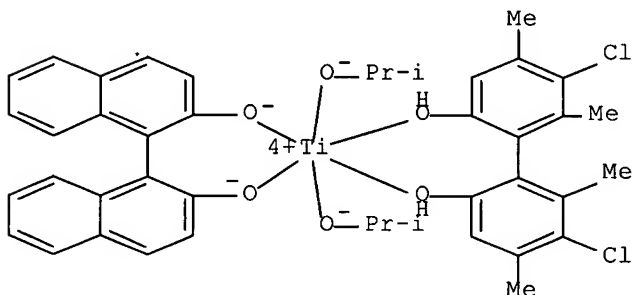
RN 188562-94-9 CAPLUS

CN Titanium, [(1R)-[1,1'-binaphthalene]-2,2'-diol-  
 $\kappa$ O, $\kappa$ O'][(1R)-[1,1'-binaphthalene]-2,2'-diolato(2)-

$\kappa O, \kappa O'$ ]bis(2-propanolato)-, (OC-6-22)- (9CI) (CA INDEX NAME)



RN 188562-96-1 CAPLUS  
 CN Titanium, [(1R)-[1,1'-binaphthalene]-2,2'-diolato(2-)- $\kappa O, \kappa O'$ ][(1R)-5,5'-dichloro-4,4',6,6'-tetramethyl[1,1'-biphenyl]-2,2'-diol- $\kappa O, \kappa O'$ ]bis(2-propanolato)-, (OC-6-22)- (9CI) (CA INDEX NAME)



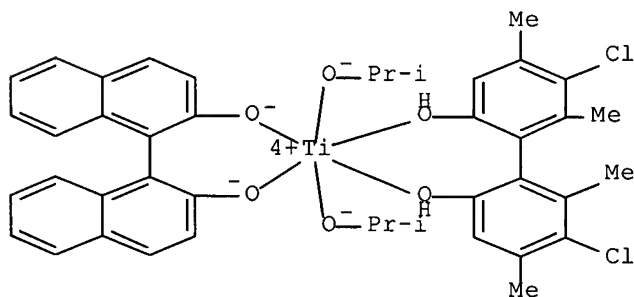
L20 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1998:70076 CAPLUS Full-text  
 DOCUMENT NUMBER: 128:153902  
 TITLE: Self-assembly of several components into a highly enantioselective Ti catalyst for carbonyl-ene reactions  
 AUTHOR(S): Mikami, Koichi; Matsukawa, Satoru; Volk, Thorsten; Terada, Masahiro  
 CORPORATE SOURCE: Dep. Chemical Technol., Fac. Eng., Tokyo Inst. Technol., Tokyo, 152, Japan  
 SOURCE: Angewandte Chemie, International Edition in English (1998), Volume Date 1997, 36(24), 2768-2771  
 CODEN: ACIEAY; ISSN: 0570-0833  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 128:153902

AB Mixts. of (R)-TADDOL or (R)-5-Cl-BIPOL [5,5'-dichloro-4,4',6,6'- tetramethyl-2,2'-biphenol] with (R)-BINOL and Ti(OCHMe<sub>2</sub>)<sub>4</sub> formed chiral catalysts that gave enantiomeric excesses of 91 and 97% resp. in the reaction of PhCMe:CH<sub>2</sub> with HCOC<sub>2</sub>H<sub>5</sub>.

IT 188562-96-1P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (enantioselective Ti catalyst for carbonyl-ene reactions)

RN 188562-96-1 CAPLUS

CN Titanium, [(1R)-[1,1'-binaphthalene]-2,2'-diolato(2-)-κO,κO'][(1R)-5,5'-dichloro-4,4',6,6'-tetramethyl[1,1'-biphenyl]-2,2'-diol-κO,κO']bis(2-propanolato)-, (OC-6-22)-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:447838 CAPLUS Full-text

DOCUMENT NUMBER: 127:155859

TITLE: An unusual trimeric bimetallic Li-Zr complex with the backbone [Zr<sub>3</sub>(μ<sub>2</sub>-OH)<sub>3</sub>(μ<sub>3</sub>-O)Li<sub>5</sub>] by reaction of zirconium organo and hydrido complexes with water

AUTHOR(S): Walther, Dirk; Ritter, Beatrix; Gorls, Helmar; Zahn, Gernot

CORPORATE SOURCE: Inst. Anorganische Analytische Chemie, Friedrich-Schiller-Universität, Jena, D-07743, Germany

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1997), 623(7), 1125-1130  
 CODEN: ZAACAB; ISSN: 0044-2313

PUBLISHER: Barth

DOCUMENT TYPE: Journal

LANGUAGE: German

AB The reaction of [(LZr)(LiH)(L1)]<sub>n</sub> and [(LZr)(LiH)(L1)(alkyne)]<sub>n</sub> (L = 2,2'-biphenolato dianion; L1 = THF, Bu<sub>3</sub>P; alkyne = PhC.tplbond.CSiMe<sub>3</sub>, C<sub>2</sub>H<sub>2</sub>) with H<sub>2</sub>O at 0° in THF solution results in the formation of the trimeric bimetallic complex [(L<sub>2</sub>Zr)<sub>3</sub>(μ<sub>2</sub>-OH)<sub>3</sub>(μ<sub>3</sub>-O)Li<sub>5</sub>(THF)<sub>8</sub>(H<sub>2</sub>O)<sub>5</sub>] (I) in 50% yield. The x-ray anal. of I shows that a planar 6-membered ring Zr<sub>3</sub>(μ<sub>2</sub>-OH)<sub>3</sub> is formed [trigonal; space group P3<sub>2</sub>, a 38.300(5), c 20.706(4) Å, V 26304(7) Å<sup>3</sup>, Z = 9]. In the middle of this ring a dianionic O atom is placed, coordinating to the 3 L<sub>2</sub>Zr centers in a planar μ<sub>3</sub>-coordination (bond angles 120.05°). Five Li ions



10/507307

stabilize the anionic backbone by bridging the biphenolato chelate ligands, which form 7-membered chelate rings with the atoms. <sup>1</sup>H, <sup>13</sup>C, and <sup>7</sup>Li NMR exhibit that the solid-state structure remains unchanged in solution

IT 193332-52-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure of)

RN 193332-52-4 CAPLUS

CN Lithium(1+), bis(tetrahydrofuran)-, (tetrahydrofuran)lithium(1+)  
hexakis[[1,1'-biphenyl]-2,2'-diolato(2-)-κO,κO']tri-μ-  
hydroxy-μ<sub>3</sub>-oxotrizirconate(5-), compd. with tetrahydrofuran  
(9:6:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 109-99-9

CMF C4 H8 O



CM 2

CRN 193332-51-3

CMF C72 H51 O16 Zr3 . 3 C8 H16 Li O2 . 2 C4 H8 Li O

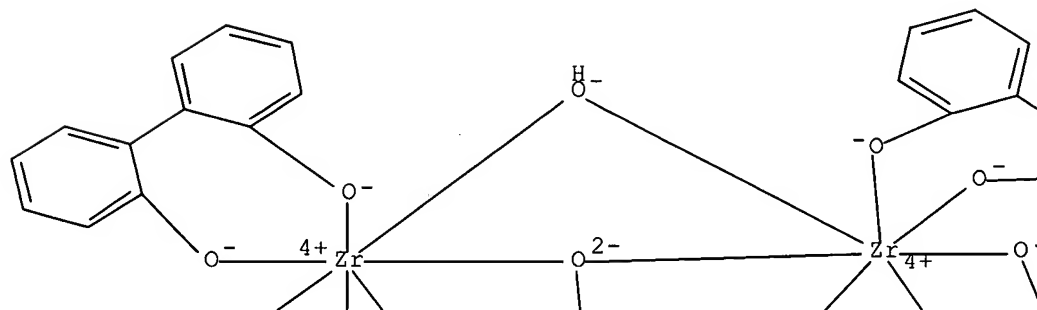
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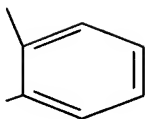
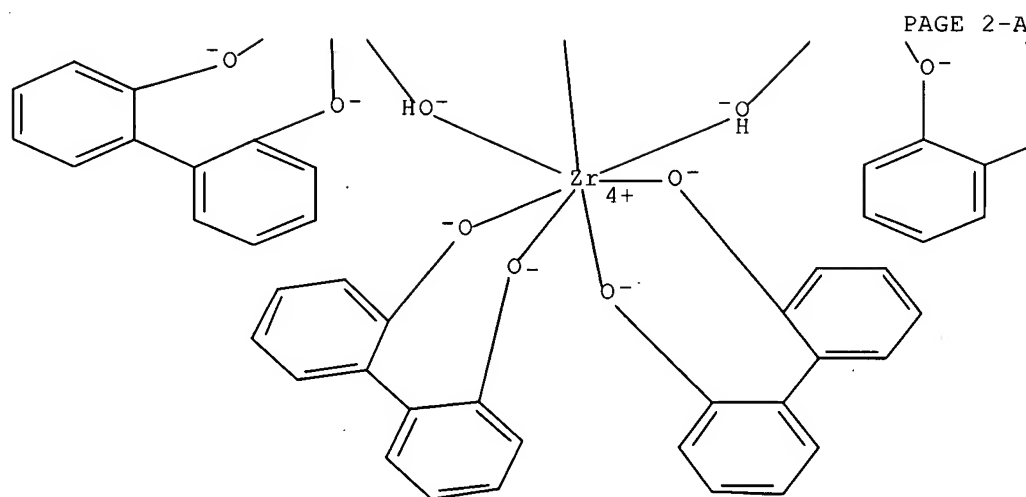
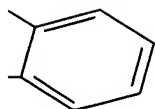
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CCI CCS

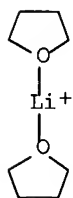
PAGE 1-A





CM 4

CRN 58702-68-4  
CMF C8 H16 Li O2  
CCI CCS

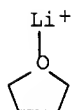


CM 5

CRN 53307-59-8

CMF C4 H8 Li O

CCI CCS



IT 193332-51-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and mol. structure)

RN 193332-51-3 CAPLUS

CN Lithium(1+), bis(tetrahydrofuran)-, (tetrahydrofuran)lithium(1+)  
hexakis[[1,1'-biphenyl]-2,2'-diolato(2-)-κO,κO']tri-μ-  
hydroxy-μ3-oxotrizirconate(5-) (3:2:1) (9CI) (CA INDEX NAME)

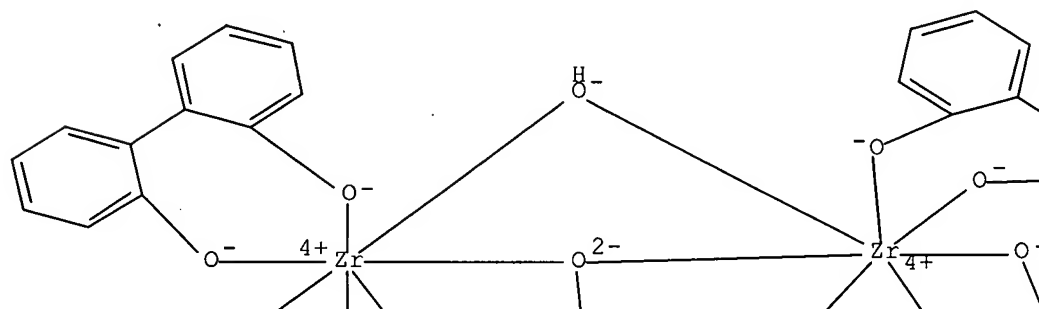
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CRN 193332-50-2

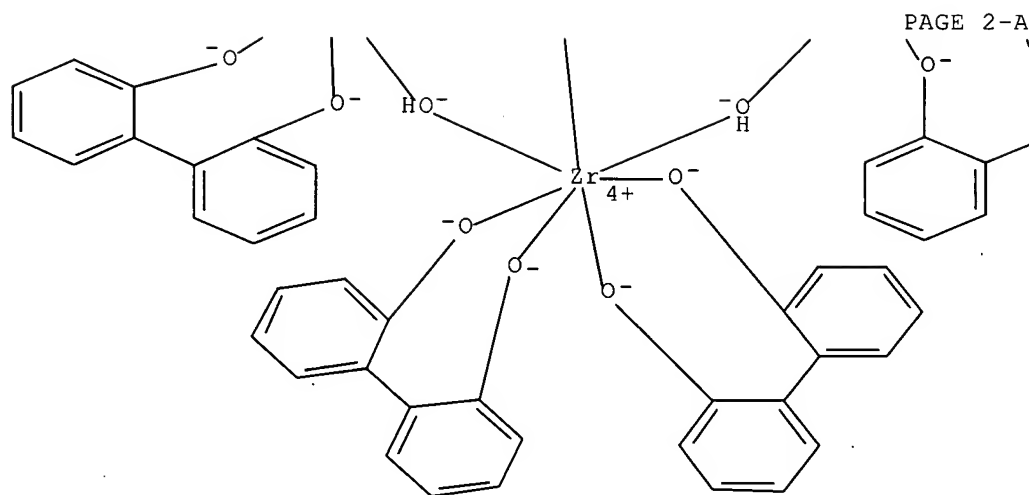
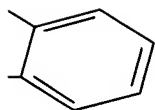
CMF C72 H51 O16 Zr3

CCI CCS

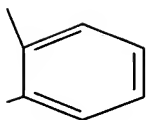
PAGE 1-A



PAGE 1-B



PAGE 2-B

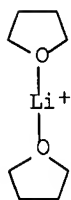


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CRN 58702-68-4

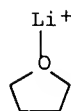
CMF C8 H16 Li O2

CCI CCS



CM 3

CRN 53307-59-8  
 CMF C4 H8 Li O  
 CCI CCS



L20 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:128618 CAPLUS Full-text

DOCUMENT NUMBER: 126:238023

TITLE: Asymmetric synthesis by enantiomer-selective  
 activation of racemic catalysts

AUTHOR(S): Mikami, Koichi; Matsukawa, Satoru

CORPORATE SOURCE: Dep. Chem. Technol., Tokyo Inst. Technol., Tokyo,  
 152, Japan

SOURCE: Nature (London) (1997), 385(6617),  
 613-617

CODEN: NATUAS; ISSN: 0028-0836

PUBLISHER: Macmillan Magazines

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A strategy in which a chiral activator selectively activates one enantiomer of a racemic chiral catalyst resulting in asym. synthesis, is described. The catalyst is a titanium(IV) complex for which a chiral additive acts as the chiral activator. The advantage of this approach over the deactivation strategy is that the activated catalyst can produce a greater enantiomeric excess in the products than can the enantiomerically pure catalyst on its own. The catalytic asym. carbonylene reaction of 2-phenylpropene with Bu glyoxylate exhibited asym. activation of the racemic titanium complex on addition of chiral activators.

IT 188562-94-9 188562-96-1

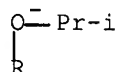
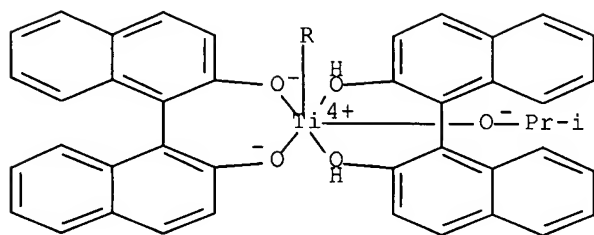
RL: CAT (Catalyst use); USES (Uses)

(asym. activation of racemic Ti complex catalysts in  
 enantioselective catalysis of carbonylene reaction)

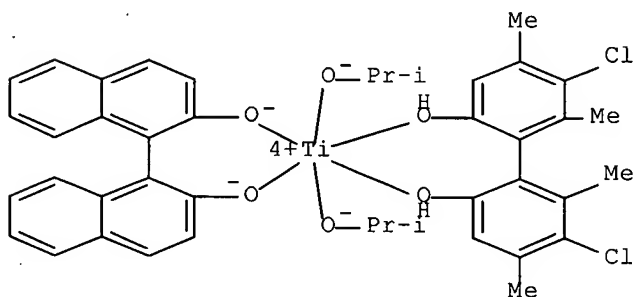
RN 188562-94-9 CAPLUS

CN Titanium, [(1R)-[1,1'-binaphthalene]-2,2'-diol-  
 κO,κO'][(1R)-[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 κO,κO']bis(2-propanolato)-, (OC-6-22)- (9CI) (CA INDEX

NAME)



RN 188562-96-1 CAPLUS  
 CN Titanium, [(1R)-[1,1'-binaphthalene]-2,2'-diolato(2-)-  
 $\kappa\text{O}, \kappa\text{O}'$ ][(1R)-5,5'-dichloro-4,4',6,6'-tetramethyl[1,1'-  
 biphenyl]-2,2'-diol- $\kappa\text{O}, \kappa\text{O}'$ ]bis(2-propanolato)-, (OC-6-22)-  
 (9CI) (CA INDEX NAME)



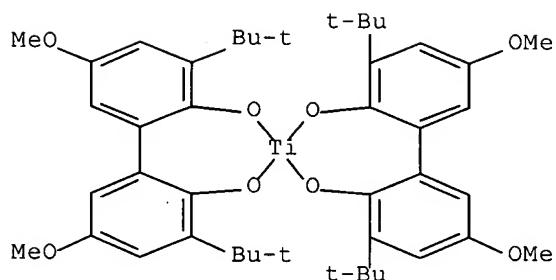
L20 ANSWER 14 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1995:433641 CAPLUS Full-text  
 DOCUMENT NUMBER: 122:266069  
 TITLE: Polymerization of  $\alpha$ -Olefins and Butadiene  
 and Catalytic Cyclotrimerization of 1-Alkynes by a  
 New Class of Group IV Catalysts. Control of  
 Molecular Weight and Polymer Microstructure via  
 Ligand Tuning in Sterically Hindered Chelating  
 Phenoxide Titanium and Zirconium Species  
 AUTHOR(S): van der Linden, Arjan; Schaverien, Colin J.;  
 Meijboom, Nico; Ganter, Christian; Orpen, A. Guy  
 CORPORATE SOURCE: Koninklijke/Shell Laboratory, Amsterdam (Shell  
 Research B.V.), Amsterdam, 1003 AA, Neth.  
 SOURCE: Journal of the American Chemical Society (  
 1995), 117(11), 3008-21  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A new class of homogeneous catalysts for olefin oligo-polymerization is reported. These titanium or zirconium sterically hindered chelating alkoxide complexes were prepared by reaction of  $M(\text{CH}_2\text{Ph})_4$  ( $M = \text{Ti}, \text{Zr}$ ) or  $\text{Zr}(\text{CH}_2\text{Ph})_2\text{Cl}_2(\text{OEt}_2)_2$  with the appropriate biphenol or binaphthol, or by reaction of  $\text{TiCl}_4$  with the diol in the presence of  $\text{NEt}_3$ . Using these methodologies, a range of binaphthoxide and biphenoxide catalysts with varying steric hindrance have been prepared:  $\{1,1'-(2,2',3,3'-\text{OC}_{10}\text{H}_5\text{SiR}_3)\}_2\text{ZrCl}_2$  ( $\text{R}_3 = \text{Me}_3$  (1);  $\text{R}_3 = \text{MePh}_2$  (2);  $\text{R}_3 = \text{Ph}_3$  (3)),  $\{1,1'-(2,2',3,3'-\text{OC}_{10}\text{H}_5\text{SiMe}_3)\}_2\text{Ti}(\text{CH}_2\text{Ph})_2$  (4),  $\{1,1'-(2,2',3,3'-\text{OC}_{10}\text{H}_5\text{SiMePh}_2)\}_2\text{Zr}(\text{CH}_2\text{Ph})_2$  (5),  $\{1,1'-(2,2',3,3'-\text{OC}_{10}\text{H}_5\text{SiPh}_3)\}_2\text{M}(\text{CH}_2\text{Ph})_2$  ( $M = \text{Ti}$  (7),  $M = \text{Zr}$  (8)),  $2,2'-\text{S}(4-\text{Me}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\text{MX}_2$  ( $\text{MX}_2 = \text{TiCl}_2$  (10);  $\text{MX}_2 = \text{ZrCl}_2$  (11);  $\text{MX}_2 = \text{Ti}(\text{CH}_2\text{Ph})_2$  (12)),  $\{2,2'-\text{S}(4-\text{Me}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\}_2\text{Ti}$  (13),  $2,2'-(4,6-\text{tert}-\text{Bu}_2\text{C}_6\text{H}_2\text{O})_2\text{MX}_2$  ( $\text{MX}_2 = \text{Ti}(\text{CH}_2\text{Ph})_2$  (14);  $\text{MX}_2 = \text{ZrCl}_2(\text{THF})_2$  (15)),  $\{2,2'-(4-\text{OMe}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\}_2\text{Ti}$  (16),  $2,2'-(4-\text{OMe}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\text{Ti}(\text{CH}_2\text{Ph})_2$  (17),  $2,2'-\text{CH}_2(4-\text{Et}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\text{TiX}_2$  ( $X = \text{CH}_2\text{Ph}$  (18),  $X = \text{Cl}$  (19)), and  $\{2,2'-\text{CH}_2(4-\text{Et}, 6-\text{tert}-\text{BuC}_6\text{H}_2\text{O})_2\}_2\text{Ti}$  (20). This class of  $\text{L}_2\text{MCl}_2$  systems can be regarded as being structurally analogous to the well-documented range of Group IV metallocenes. Alkylation of  $(\text{O}-\text{O})\text{ZrCl}_2$  ( $\text{O}-\text{O}$  = chelating phenoxide) allowed access to other alkyl species. Therefore, reaction of 3 with  $\text{MeLi}$  or  $\text{Me}_3\text{SiCH}_2\text{Li}$  afforded  $\{1,1'-(2,2',3,3'-\text{OC}_{10}\text{H}_5\text{SiPh}_3)\}_2\text{ZrX}_2$  ( $X = \text{Me}$  (6);  $X = \text{CH}_2\text{SiMe}_3$  (9)), resp. The X-ray crystal structure of 17 is reported. At 213 K,  $17 \cdot 1/2\text{OEt}_2$  has space group  $P_{21}2_12_1$  and unit cell dimensions  $a = 8.737(9)$  Å,  $b = 11.840(10)$  Å,  $c = 17.135(17)$  Å,  $\alpha = 98.28(7)^\circ$ ,  $\beta = 90.53(8)^\circ$ ,  $\gamma = 101.38(7)^\circ$ ,  $\mu(\text{Mo K}\alpha) = 28.8 \text{ cm}^{-1}$ . Attempts to prepare analogous sterically hindered binaphthiolates were thwarted by the absence of known sterically hindered chelating binaphthiols. Synthetic routes to such ligands were attempted albeit without success. The chelating phenoxide and binaphthoxide titanium and zirconium species, in the presence of an aluminum cocatalyst are active for the oligomerization and polymerization of  $\alpha$ -olefins. For the polymerization of ethylene, rates of up to 4740 kg of PE/mol of catalyst·h (100 kg/g of Ti·h) were obtained. They are active for the polymerization of butadiene and the catalytic cyclotrimerization of terminal acetylenes to 1,2,4- and 1,3,5-trisubstituted benzenes. This ratio of benzenes is dependent on the steric bulk of the ancillary binaphthol ligands. Steric modifications also have a clear influence on the degree of 1-hexene polymerization as well as the tacticity of poly(1-hexene). In particular, the chelating alkoxide ligand framework can induce stereoregularity. For 1 and 2, with methylaluminoxane as cocatalyst, regioregular and stereospecific polymerization of 1-hexene is observed to give high mol. weight isotactic polyhexene. Related ligand-dependent differences in polymer microstructure are observed in the polymerization of butadiene. Cationic complexes have been synthesized.  $[(\text{C}_{10}\text{H}_5\text{SiPh}_3\text{O})_2\text{Zr}(\text{CH}_2\text{Ph})]\text{BPh}_4$  (21), and zwitterionic  $(\text{C}_{10}\text{H}_5\text{SiPh}_3\text{O})_2\text{Zr}(\text{CH}_2\text{Ph})(\eta^6\text{-PhCH}_2)\text{B}(\text{C}_6\text{F}_5)_3$  (22) were made by treatment of 8 with  $[\text{PhNMe}_2\text{H}]\text{BPh}_4$  and  $\text{B}(\text{C}_6\text{F}_5)_3$ , resp. They are active for the polymerization of ethylene.

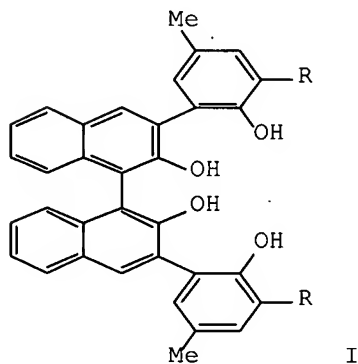
IT 162583-15-5P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (catalyst; sterically hindered chelating titanium and zirconium catalysts for polymerization of olefins and cyclotrimerization of alkynes)

RN 162583-15-5 CAPLUS

CN Titanium, bis[3,3'-bis(1,1-dimethylethyl)-5,5'-dimethoxy[1,1'-biphenyl]-2,2'-diolato(2-)-O2,O2']-, (T-4)- (9CI) (CA INDEX NAME)



L20 ANSWER 15 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1993:494992 CAPLUS Full-text  
 DOCUMENT NUMBER: 119:94992  
 TITLE: Chiral helical Lewis acids for asymmetric  
 Diels-Alder catalysts  
 AUTHOR(S): Maruoka, Keiji; Murase, Noriaki; Yamamoto, Hisashi  
 CORPORATE SOURCE: Dep. Appl. Chem., Nagoya Univ., Nagoya, 464-01,  
 Japan  
 SOURCE: Journal of Organic Chemistry (1993),  
 58(11), 2938-9  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 119:94992  
 GI



AB A new type of chiral helical titanium reagent has been prepared from titanium tetraisopropoxide and a chiral ligand (R)-I (R = Ph, silyl group) derived from optically pure binaphthol. I (R = triarylsilyl) was found to be quite effective for obtaining high enantioselectivity in the asym. Diels-Alder reaction. The I (R = triarylsilyl) have been successfully utilized as an efficient chiral template for conformational fixation of  $\alpha,\beta$ -unsatd. aldehydes, thereby allowing efficient enantioface recognition of the substrates for achievement of uniformly high asym. induction in asym. Diels-Alder reaction with dienes, regardless of reaction temperature

IT 148950-92-9P 148950-93-0P 148950-94-1P  
 148950-95-2P 148950-96-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

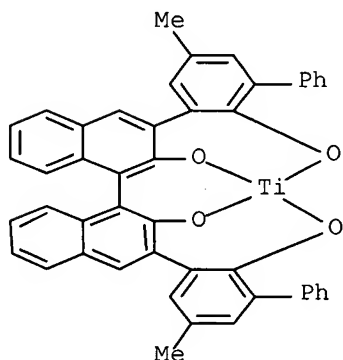


10/507307

(preparation and catalysis by, of asym. Diels-Alder reaction)

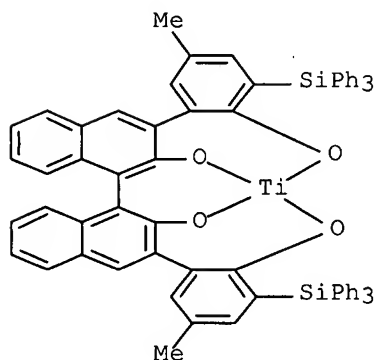
RN 148950-92-9 CAPLUS

CN Titanium, [3,3'-bis(2-hydroxy-5-methyl[1,1'-biphenyl]-3-yl)[1,1'-binaphthalene]-2,2'-diolato(4-)-O,O',O'',O'''-], [T-4-(R)]- (9CI) (CA INDEX NAME)



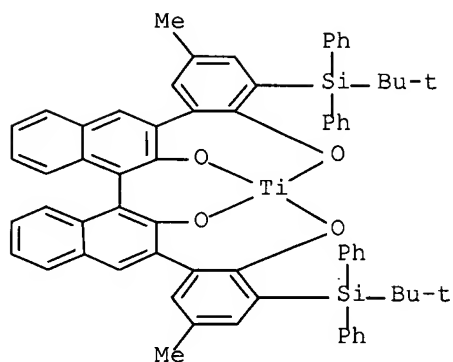
RN 148950-93-0 CAPLUS

CN Titanium, [3,3'-bis[2-hydroxy-5-methyl-3-(triphenylsilyl)phenyl][1,1'-binaphthalene]-2,2'-diolato(4-)-O,O',O'',O'''-], [T-4-(R)]- (9CI) (CA INDEX NAME)



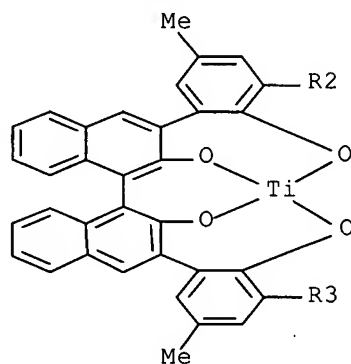
RN 148950-94-1 CAPLUS

CN Titanium, [3,3'-bis[3-[(1,1-dimethylethyl)diphenylsilyl]-2-hydroxy-5-methylphenyl][1,1'-binaphthalene]-2,2'-diolato(4-)-O,O',O'',O'''-], [T-4-(R)]- (9CI) (CA INDEX NAME)

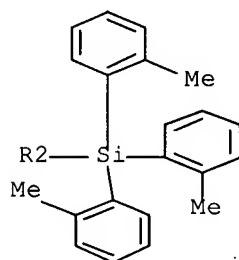
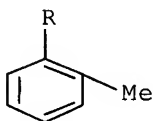


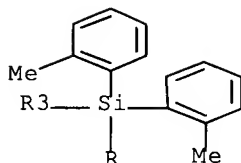
RN 148950-95-2 CAPLUS  
 CN Titanium, [3,3'-bis[2-hydroxy-5-methyl-3-[tris(2-methylphenyl)silyl]phenyl][1,1'-binaphthalene]-2,2'-diolato(4-)-O,O',O'',O''']-, [T-4-(R)]- (9CI) (CA INDEX NAME)

PAGE 1-A

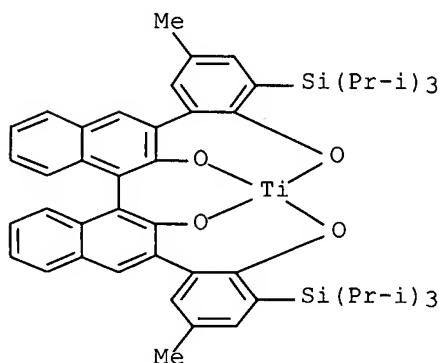


PAGE 2-A





RN 148950-96-3 CAPLUS  
 CN Titanium, [3,3'-bis[2-hydroxy-5-methyl-3-[tris(1-methylethyl)silyl]phenyl][1,1'-binaphthalene]-2,2'-diolato(4-)-O,O',O'',O''']-, [T-4-(R)]- (9CI) (CA INDEX NAME)



L20 ANSWER 16 OF 16 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1968:101325 CAPLUS Full-text  
 DOCUMENT NUMBER: 68:101325  
 ORIGINAL REFERENCE NO.: 68:19559a,19562a  
 TITLE: Synthesis of titanium(IV) acid esters with six-and seven-membered ring structure  
 AUTHOR(S): Andrae, Klaus  
 CORPORATE SOURCE: Univ. Halle/Saale, Halle/Saale, Fed. Rep. Ger.  
 SOURCE: Chemische Berichte (1968), 101(3), 1013-17  
 CODEN: CHBEAM; ISSN: 0009-2940  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German

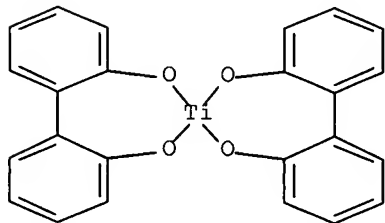
AB  $\text{TiCl}_4$  treated with 2,2'-dihydroxybiphenyl gave bis(2,2'-biphenylenedioxy)titanium, while the reaction of  $\text{TiCl}_4$  with 2,2'-dihydroxy-1,1'-binaphthyl led to the partial substitution of the Cl atoms only. The reactions carried out in the presence of strongly basic organic amines led to halogen-free amine complexes.  $\text{TiCl}_4$  treated with 1,8-dihydroxynaphthalene in the presence of  $\text{Et}_3\text{N}$ ,  $\text{Et}_2\text{NH}$ , or pyridine gave the corresponding diamine complexes of bis(1,8-naphthylenedioxy)titanium.  
 IT 20270-20-6P 20589-17-7P 20589-18-8P  
 20589-19-9P 20589-20-2P 21350-79-8P  
 21350-83-4P

10/507307

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

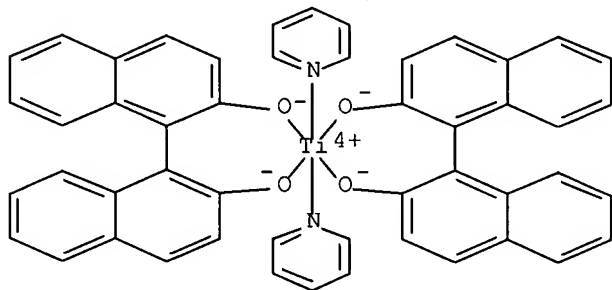
RN 20270-20-6 CAPLUS

CN Titanium, bis[[1,1'-biphenyl]-2,2'-diolato(2-)- $\kappa O, \kappa O'$ ]-,  
(T-4)- (9CI) (CA INDEX NAME)



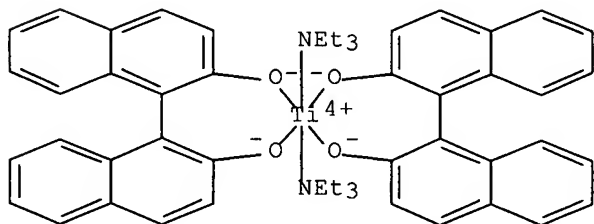
RN 20589-17-7 CAPLUS

CN Titanium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)]bis(pyridine)-  
(8CI) (CA INDEX NAME)



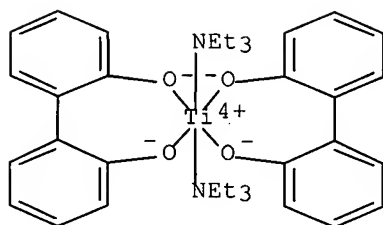
RN 20589-18-8 CAPLUS

CN Titanium, bis[[1,1'-binaphthalene]-2,2'-diolato(2-)]bis(triethylamine)-  
(8CI) (CA INDEX NAME)



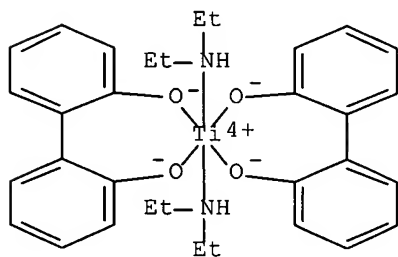
RN 20589-19-9 CAPLUS

CN Titanium, bis[2,2'-biphenyldiolato(2-)]bis(triethylamine)- (8CI) (CA  
INDEX NAME)



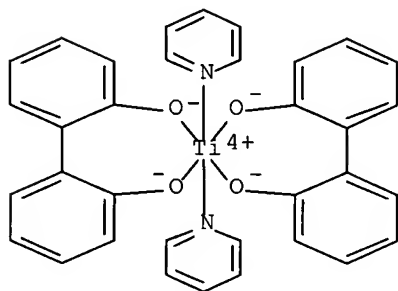
RN 20589-20-2 CAPLUS

CN Titanium, bis[2,2'-biphenyldiolato(2-)]bis(diethylamine) (8CI) (CA INDEX NAME)



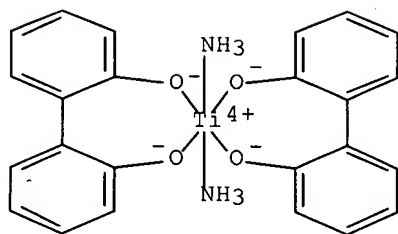
RN 21350-79-8 CAPLUS

CN Titanium, bis[2,2'-biphenyldiolato(2-)]bis(pyridine)- (8CI) (CA INDEX NAME)



RN 21350-83-4 CAPLUS

CN Titanium, diamminebis[2,2'-biphenyldiolato(2-)]- (8CI) (CA INDEX NAME)



FILE 'CAOLD' ENTERED AT 12:16:43 ON 21 SEP 2007  
L21 0 S L13

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L22 0 S L13

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L23 63006 SEA ABB=ON PLU=ON ("KOBAYASHI S"? OR "SHU K?")/AU  
L24 124 SEA ABB=ON PLU=ON L23 AND (ZIRCONIUM OR ZR) (S) CATALY?  
L25 4 SEA ABB=ON PLU=ON L24 AND (ZEOLITE OR SIEVE(W) (3A OR 4A  
OR 5A))  
L26 70 SEA ABB=ON PLU=ON L23 AND ((ZIRCONIUM OR ZR) (5A)  
CATALY?) (5A) CHIRAL?  
L27 16 SEA ABB=ON PLU=ON L26 AND (STORAB? OR STORE# OR STORING  
OR STORAGE)  
L28 5 SEA ABB=ON PLU=ON L23 AND ((ZR OR ZIRCONIUM) AND  
(ZEOLITE OR SIEVE(W) (3A OR 4A OR 5A)))  
L29 19 SEA ABB=ON PLU=ON L25 OR L27 OR L28  
L30 9 DUP REM L29 (10 DUPLICATES REMOVED)

L30 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2007:462225 CAPLUS Full-text

DOCUMENT NUMBER: 147:95131

TITLE: **Storable**, powdered chiral zirconium complex for asymmetric aldol and hetero Diels-Alder reactionsAUTHOR(S): Seki, Kazutaka; Ueno, Masaharu; **Kobayashi, Shu**

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The University of Tokyo, Tokyo, 113-0033, Japan

SOURCE: Organic &amp; Biomolecular Chemistry (2007), 5(9), 1347-1350

CODEN: OBCRAK; ISSN: 1477-0520

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 147:95131

AB A **storable**, powdered **chiral Zr**

**catalyst** for asym. aldol and hetero Diels-Alder reactions was developed. The catalyst has the same activity as the one prepared in situ even after being **stored** for 3 mo. Moreover, this **chiral Zr catalyst** worked efficiently not only for asym. aldol reactions but also for asym. hetero Diels-Alder reactions affording the corresponding addition products with high enantioselectivities. Seven aldols were prepared by the reaction of silyl enolates with aromatic or aliphatic aldehydes in the presence of the powdered **chiral zirconium catalyst** in 87% to 97% yields and 80% to 98% ee. E.g., reaction of benzaldehyde with Me<sub>2</sub>C:C(OMe)(OSiMe<sub>3</sub>) gave (S)-Me 3-hydroxy-2,2-dimethyl-3-phenylpropanoate in 95% yield and 98% ee. Six anti-aldol adducts were prepared in 63% to quant. yields and high diastereo- and enantioselectivities by the reaction of aromatic or aliphatic aldehydes with (E)-MeHC:C(OMe)(OSiMe<sub>3</sub>). The powdered catalyst was employed in six asym. hetero Diels-Alder reactions of aldehydes with Danishefsky's diene (E)-tBuOHC:CHC(OSiEtMe<sub>2</sub>):CH<sub>2</sub> to afford the desired products in 90% to 96% yields and 81% to 95% ee. E.g., reaction of benzaldehyde with the diene gave (R)-2-phenyl-2,3-dihydro-4H-pyran-4-one in 96% yield and 95% ee.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2006:784666 CAPLUS Full-text

DOCUMENT NUMBER: 145:397165

TITLE: Remarkably Stable Chiral Zirconium Complexes for Asymmetric Mannich-Type Reactions

AUTHOR(S): Saruhashi, Kowichiro; **Kobayashi, Shu**

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, University of Tokyo, Tokyo, 113-0033, Japan

SOURCE: Journal of the American Chemical Society (2006), 128(34), 11232-11235

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 145:397165

AB Isolable, air-stable, **storable**, and highly selective **chiral zirconium catalysts** for asym. Mannich-type reactions have been developed. The reactions of imines with silicon enolates proceeded smoothly using 1-10 mol % of the powdered zirconium catalyst to afford the adducts in high yields with high stereoselectivities. The catalyst could be recovered and reused without significant loss of activity. On the other hand, zirconium single crystals

for X-ray anal. were obtained, and the crystals also showed high performance in the asym. Mannich-type reactions. Although NMR analyses of these zirconium catalysts showed different structures in dichloromethane, the formation of the same key intermediate from the different catalysts was indicated.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:517643 CAPLUS Full-text

DOCUMENT NUMBER: 144:232496

TITLE: Development of air-stable, **storable** **chiral zirconium catalysts**

AUTHOR(S): Yamashita, Yasuhiro; **Kobayashi, Shu**

CORPORATE SOURCE: Graduate School of Pharmacy, The University of Tokyo, Japan

SOURCE: Fain Kemikaru (2005), 34(6), 5-14  
CODEN: FNKMAU; ISSN: 0913-6150

PUBLISHER: Shi Emu Shi Shuppan

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review on chiral zirconium-binaphthol complexes stabilized by mol. sieves and N-methylimidazole for asym. Mannich reaction, asym. aza-Diels-Alder reaction, asym. aldol reaction, and hetero-Diels-Alder reaction.

L30 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2004:342378 CAPLUS Full-text

DOCUMENT NUMBER: 141:53792

TITLE: Air-stable, **storable**, and highly efficient **chiral zirconium catalysts** for enantioselective Mannich-type, aza Diels-Alder, aldol, and hetero Diels-Alder reactions

AUTHOR(S): **Kobayashi, Shu**; Ueno, Masaharu; Saito, Susumu; Mizuki, Yumiko; Ishitani, Haruro; Yamashita, Yasuhiro

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, University of Tokyo, Tokyo, 113-0033, Japan

SOURCE: Proceedings of the National Academy of Sciences of the United States of America (2004), 101(15), 5476-5481  
CODEN: PNASA6; ISSN: 0027-8424

PUBLISHER: National Academy of Sciences

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:53792

AB Air-stable, **storable**, and highly efficient chiral zirconium Lewis acids have been developed. The catalysts promote asym. Mannich-type, aza Diels-Alder, aldol, and hetero Diels-Alder reactions efficiently with high enantioselectivities. A key to stabilizing the catalysts is an appropriate combination of chiral zirconium Lewis acids with mol. sieves, and the zirconium-mol. sieves-combined catalysts can be **stored** for extended periods in air at room temperature without loss of activity. Moreover, it has been demonstrated that the catalysts can be recovered and reused.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



L30 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4  
 ACCESSION NUMBER: 2003:737638 CAPLUS Full-text  
 DOCUMENT NUMBER: 139:246119  
 TITLE: Preparation of chiral esters and thioesters using  
 stable **chiral zirconium**  
**catalyst**  
 INVENTOR(S): **Kobayashi, Shu**  
 PATENT ASSIGNEE(S): Japan Science and Technology Corporation, Japan  
 SOURCE: PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003076072	A1	20030918	WO 2003-JP2860	20030311
W: JP, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
EP 1495806	A1	20050112	EP 2003-710298	20030311
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
US 2005164869	A1	20050728	US 2003-507307	20030311
PRIORITY APPLN. INFO.:			JP 2002-66122	A 20020311
			WO 2003-JP2860	W 20030311

OTHER SOURCE(S): MARPAT 139:246119

AB The patent relates to the preparation of stereo compds. by Mannich reaction using practical **chiral zirconium catalyst** fixed with **zeolite**. The practical **chiral zirconium catalyst** can maintain high **catalyst** activity after the **storage** for a long period of time, is stable also in air, can be recovered and reused after reaction, and thus exhibits high practicality. Thus, a **catalyst** prepared from **zirconium** tetra(tert-butoxide), (R)-6,6'-di-[perfluoroethyl]-BINOL in presence of N-methylimidazole and mol. **sieves 5A** was used to **catalyze** the reaction of 1-methoxy-1-trimethylsilyloxy-2,2-dimethylethene and the adduct of benzaldehyde and 2-aminophenol to obtain (R)-Me 2,2'-dimethyl(2-hydroxyphenyl)amino-3-phenylpropionate (90% ee).

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L30 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5  
 ACCESSION NUMBER: 2003:564789 CAPLUS Full-text  
 DOCUMENT NUMBER: 140:41869  
 TITLE: An air-stable, **storable chiral**  
**zirconium catalyst** for  
 asymmetric aldol reactions  
 AUTHOR(S): **Kobayashi, Shu; Saito, Susumu; Ueno,**  
**Masaharu; Yamashita, Yasuhiro**  
 CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, The  
 University of Tokyo, Hongo, Bunkyo-ku, 113-0033,  
 Japan  
 SOURCE: Chemical Communications (Cambridge, United  
 Kingdom) (2003), (16), 2016-2017  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal

LANGUAGE: English  
OTHER SOURCE(S): CASREACT 140:41869  
AB Asym. aldol reactions of ketene silyl acetals with aldehydes using an air-stable, **storable chiral zirconium catalyst**, which could be stored for at least 13 wk at room temperature, proceeded smoothly to afford the desired adducts in high yields with high selectivity. The catalyst was prepared by treating Zr(OPr)<sub>4</sub>.PrOH with 3,3'-diiodo-BINOL and 5Å mol. sieves.  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L30 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1996:707563 CAPLUS Full-text  
DOCUMENT NUMBER: 125:337303  
TITLE: Colored glass formation on inorganic substrates by laser irradiation for decorative building materials  
INVENTOR(S): Nagai, Kaori; Ichihara, Hideki; Uigunaraaja, Shibakumaran; **Kobayashi, Sadao**  
PATENT ASSIGNEE(S): Taisei Corp, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08239283	A	19960917	JP 1995-43924	19950303
JP 3813195	B2	20060823		
PRIORITY APPLN. INFO.:			JP 1995-43924	19950303

AB The process comprises coating of inorg. substrates with vitrifying agents, agents for decreasing m.p. of the vitrifying agents, and colorants and IR irradiation. Decorative substrates are stably obtained and are especially suitable for use as building interiors and exteriors.

L30 ANSWER 8 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1993:65897 CAPLUS Full-text  
DOCUMENT NUMBER: 118:65897  
TITLE: Removal of organic halides from waste gases  
INVENTOR(S): Mizuno, Koichi; Koinuma, Yutaka; **Kobayashi, Satoru**; Kushiya, Satoshi; Aizawa, Reiji; Ohuchi, Hideo; Tajima, Masahiro; Fujii, Yashushi; Asano, Seiichi  
PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology, Japan; Tosoh Corp.  
SOURCE: PCT Int. Appl., 35 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9211920	A1	19920723	WO 1991-JP258	19910227
W: CA, US				

RW: DE, FR, GB

JP 04250825	A	19920907	JP 1990-418884	19901227
CA 2077077	A1	19920628	CA 1991-2077077	19910227
CA 2077077	C	20010605		
EP 516850	A1	19921209	EP 1991-905338	19910227
EP 516850	B1	19960918		

R: DE, FR, GB

PRIORITY APPLN. INFO.: JP 1990-418884 A 19901227

WO 1991-JP258 W 19910227

AB Halides, e.g., CCl<sub>4</sub>, in a waste gas in a concentration range of 10-10,000 ppm are removed by decomposition by contacting with a metal compound or an acidic **zeolite**. The metal may be  $\geq 1$  metals of the 3rd-6th periods of the periodic table except Group IA and IIA metals, and the **zeolite** is preferably loaded or substituted with metal(s) of 2nd-6th periods of the periodic table. The decomposition can be carried out at 100-400°.

L30 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1991:234327 CAPLUS Full-text

DOCUMENT NUMBER: 114:234327

TITLE: Removal of halohydrocarbons from waste gases by catalytic decomposition

INVENTOR(S): Mizuno, Koichi; Hinuma, Yutaka; **Kobayashi, Satoru**; Kushama, Akira; Aizawa, Reiji; Oochi, Hideo; Tajima, Masahiro; Asano, Seiichi

PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology, Japan; Tosoh Corp.

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 03047516	A	19910228	JP 1990-52701	19900306
JP 2976041	B2	19991110		
PRIORITY APPLN. INFO.:			JP 1989-51995	A1 19890306
			JP 1989-101151	A1 19890420

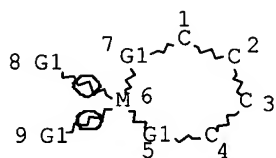
AB Noxious halohydrocarbons (e.g., Fron-113, trichloroethane) are removed from industrial flue gases by **catalytic** decomposition with a fixed bed of  $\geq 1$  metal compound of Al, Si, V, Fe, Co, Cu, Zn, **Zr**, Mo, Pd, Pt, Ag, and Hg on a porous aluminosilicate and/or aluminophosphate support at 100-800°, preferably 150-600°, and  $\leq 50,000$  h<sup>-1</sup> space velocity. Thus, a flue gas containing 0.1 volume% Fron-113 was contacted with a Cu-exchanged mordenite-type **zeolite** (i.e., HSZ-320HOA) catalyst at 500° and a gas flow of 500 mL/min for 10 h, resulting in the removal of Fron-113 100%, vs. 82% for a conventional catalyst.

FILE 'HOME' ENTERED AT 12:25:50 ON 21 SEP 2007

=> d que l5; d que l13; d his ful

L1 SCR 1984

L2 STR



VAR G1=O/S

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

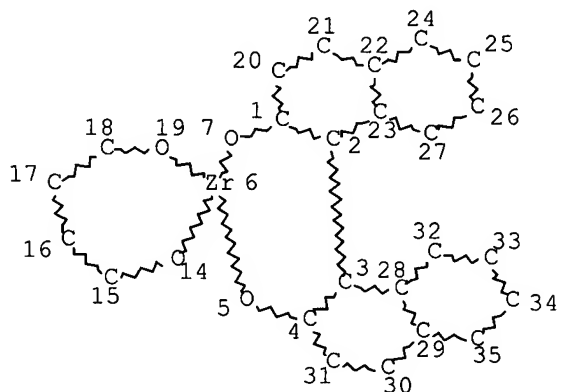
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NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L3 ( 324)SEA FILE=REGISTRY SSS FUL L1 AND L2

L4 STR



NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

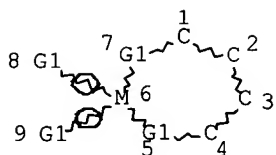
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STEREO ATTRIBUTES: NONE

L5 9 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

L9 SCR 1984

L10 STR



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NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

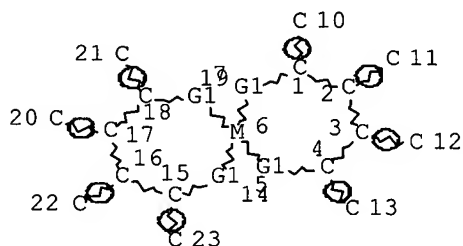
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NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L11 ( 324)SEA FILE=REGISTRY SSS FUL L9 AND L10

L12 STR



VAR G1=O/S

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 21

STEREO ATTRIBUTES: NONE

L13 76 SEA FILE=REGISTRY SUB=L11 SSS FUL L12

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ACT DAVIS507SPEC/A

L1 SCR 1984

L2 STR

L3 ( 324)SEA SSS FUL L1 AND L2

L4 STR

L5 9 SEA SUB=L3 SSS FUL L4

FILE 'REGISTRY' ENTERED AT 12:12:37 ON 21 SEP 2007  
D QUE STAT

FILE 'CAPLUS' ENTERED AT 12:12:38 ON 21 SEP 2007  
L6 7 SEA ABB=ON PLU=ON L5  
D L6 1-7 IBIB ABS HITSTR

FILE 'CAOLD' ENTERED AT 12:13:02 ON 21 SEP 2007

L7 0 SEA ABB=ON PLU=ON L5

FILE 'MEDLINE, BIOSIS, EMBASE' ENTERED AT 12:13:35 ON 21 SEP 2007

L8 0 SEA ABB=ON PLU=ON L5

FILE 'REGISTRY' ENTERED AT 12:13:43 ON 21 SEP 2007

ACT DAVIS507GEN/A

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L9 SCR 1984

L10 STR

L11 ( 324) SEA SSS FUL L9 AND L10

L12 STR

L13 76 SEA SUB=L11 SSS FUL L12

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D QUE STAT

FILE 'CAPLUS' ENTERED AT 12:14:59 ON 21 SEP 2007

L14 34 SEA ABB=ON PLU=ON L13

L15 27 SEA ABB=ON PLU=ON L14 NOT L6

L16 14 SEA ABB=ON PLU=ON L15 AND PATENT/DT

L17 7 SEA ABB=ON PLU=ON L16 AND (PY<2002 OR PRY<2002 OR  
AY<2002)

L18 13 SEA ABB=ON PLU=ON L15 NOT L16

L19 9 SEA ABB=ON PLU=ON L18 AND PY<2002

L20 16 SEA ABB=ON PLU=ON L17 OR L19

SEL HIT L20 1-16 RN

D 1-16 IBIB ABS HITSTR

FILE 'CAOLD' ENTERED AT 12:16:43 ON 21 SEP 2007

L21 0 SEA ABB=ON PLU=ON L13

FILE 'MEDLINE, BIOSIS, EMBASE' ENTERED AT 12:17:03 ON 21 SEP 2007

L22 0 SEA ABB=ON PLU=ON L13

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ENTERED AT 12:17:24 ON 21 SEP 2007

L23 63006 SEA ABB=ON PLU=ON ("KOBAYASHI S"? OR "SHU K"?)/AU

L24 124 SEA ABB=ON PLU=ON L23 AND (ZIRCONIUM OR ZR) (S) CATALY?

L25 4 SEA ABB=ON PLU=ON L24 AND (ZEOLITE OR SIEVE(W) (3A OR 4A  
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L26 70 SEA ABB=ON PLU=ON L23 AND ((ZIRCONIUM OR ZR) (5A)  
CATALY?) (5A) CHIRAL?

L27 16 SEA ABB=ON PLU=ON L26 AND (STORAB? OR STORE# OR STORING  
OR STORAGE)

L28 5 SEA ABB=ON PLU=ON L23 AND ((ZR OR ZIRCONIUM) AND  
(ZEOLITE OR SIEVE(W) (3A OR 4A OR 5A)))

L29 19 SEA ABB=ON PLU=ON L25 OR L27 OR L28

L30 9 DUP REM L29 (10 DUPLICATES REMOVED)

D 1-9 IBIB ABS

FILE 'HOME' ENTERED AT 12:25:50 ON 21 SEP 2007

D QUE L5

D QUE L13

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assignees, and patent information, e.g., patent numbers, are  
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FILE COVERS 1974 TO 20 Sep 2007 (20070920/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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